

DRAFT

**Environmental Impact Report
500-year Flood Protection Project**



State Clearinghouse No. 2021070157

Prepared for:



Prepared by:



January 2022

DRAFT

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500-year Flood Protection Project**

State Clearinghouse No. 2021070157

Prepared for:

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January 17, 2022

Project No. 050115, 10003

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Abbreviations and Acronyms

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
mg/m ³	milligrams per cubic meter
500-year Project	500-year Flood Protection Project
AB	Assembly Bill
ac-ft	acre-feet
ACHP	Advisory Council on Historic Preservation
AE	Exclusive Agriculture
AEP	annual exceedance probability
AFB	Air Force Base
AQAP	Air Quality Attainment Plan
ARC	Atmospheric River Control
Basin Plan	Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin
BMPs	best management practices
BNSF	Burlington Northern Santa Fe
B.P	Before Present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEMA	California Emergency Management Agency
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
cfs	cubic feet per second
CO	carbon monoxide
CCR	California Code of Regulations
CEC	California Energy Commission

CFR	Code of Federal Regulations
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CGS	California Geological Survey
CH ₄	methane
CNDDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalents
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranks
CVFPB	Central Valley Flood Protection Board
CVFPP	2012 Central Valley Flood Protection Plan
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DBH	Diameter breast height
DFW	California Department of Fish and Wildlife
DOC	California Department of Conservation
DOF	California Department of Finance
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
DWSE	Design water surface elevation
EIR	Environmental Impact Report
Enterprise	Estom Yumeka Maidu Tribe of the Enterprise Rancheria
EO	Executive Order
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
Farmland	Farmland Mapping and Monitoring Program
FEMA	Federal Emergency Management Agency

FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FIRO	forecast informed operations
FMMP	Farmland Mapping and Monitoring Program
FRAQMD	Feather River Air Quality Management District
FTA	Federal Transit Administration
GEI	GEI Consultants, Inc.
GHG	greenhouse gas
GPS	Geographic Positioning System
GSP	Groundwater Sustainability Plan
Goldfields	Yuba Goldfields
GWP	Global warming potential
HCP	Habitat Conservation Plan
HEC-RAS	USACE Institute for Water Resources Hydraulic Engineering Center River Analysis System
HFCs	hydrofluorocarbons
hp	horsepower
HRA	health risk assessment
HSC	California Health and Safety Code
IPaC	Information for Planning and Conservation
IPCC	Intergovernmental Panel on Climate Change
KOP	Key Observation Points
lbs/day	pounds per day
L _{dn}	day-night average level
L _{eq}	equivalent sound level
L _{max}	maximum sound level
L _n	Percentile-exceeded sound level
LUCP	Land Use Compatibility Plan
M	million
MBTA	Migratory Bird Treaty Act
MHMP	Multi-Hazard Mitigation Plan
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
msl	mean sea level
MT	metric tons
MTP	metropolitan transportation plan

NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAVD 88	North American Vertical Datum of 1988
NCCP	Natural Communities Conservation Plan
NCIC	North Central Information Center
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O ₃	ozone
ODB	Olivehurst Detention Basin
O&M	operations and maintenance
PFCs	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM _{2.5}	particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter
PM ₁₀	particulate matter equal to or less than 10 micrometers in aerodynamic diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
project	500-year Flood Protection Project
RCNM	Roadway Construction Noise Model
RD	Reclamation District
ROG	reactive organic gases
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
Scoping Plan	Climate Change Scoping Plan

SGMA	Sustainable Groundwater Management Act
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SO ₂	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
SR	State Route
SRFCP	Sacramento River Flood Control Project
SVAB	Sacramento Valley Air Basin
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TCR	Tribal cultural resource
TMDL	total maximum daily loads
TRLIA	Three Rivers Levee Improvement Authority
UAIC	United Auburn Indian Community of the Auburn Rancheria
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles traveled
WDR	waste discharge requirement
WPIC	Western Pacific Interceptor Canal
YCWA	Yuba County Water Agency
YWA	Yuba Water Agency

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Executive Summary

ES.1. Introduction

The California Environmental Quality Act (CEQA) specifies that a public agency must prepare an environmental impact report (EIR) on any project that it proposes to carry out or approve that may result in a significant effect on the physical environment (California Public Resources Code, Section 21080[d]). Serving as the CEQA lead agency, the Three Rivers Levee Improvement Authority (TRLIA) has prepared this project-level EIR in accordance with CEQA and the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15000 et seq.) to evaluate the potential environmental impacts associated with implementing the 500-year Flood Protection Project (project or 500-year Project). This EIR is an informational document to inform public agency decision makers and the public of the significant environmental effects of the project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project (State CEQA Guidelines, Section 15121[a]).

ES.2. Project Purpose and Objectives

The overall project purpose is to ensure the Reclamation District (RD) 784 urban levee system is resilient to climate change by improving specific levee segments to provide a uniform, 500-year level of flood protection for all urban levees.

Project objectives are as follows:

- Improve segments of the RD 784 urban system that have the lowest levels of performance to address levee superiority concerns (differing flood protection levels) within the existing system and provide a uniform, 500-year level of flood protection
- Ensure the 200-year urban level of protection requirements are maintained in the future when considering potential flood flow increases from climate change
- Complete improvements in accordance with State and Federal flood risk reduction funding requirements and within State and Federal funds available for the project
- Complete improvements by December 31, 2027

ES.3. Proposed Project

The project is located in southwestern Yuba County, California (**Figure ES-1**). In the northern portion of the project area, activities would occur along the western edge of the Yuba Goldfields (Goldfields) and along the Yuba River South Levee east of Simpson Lane. In the southern portion of the project area, activities would occur along the Feather River East Levee, Bear River

Figure ES-1. Project Location



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Source: Project site identified by HDR, Inc. and GEI Consultants, Inc. in 2021

North Levee and Bear River Setback Levee (between the Feather River East Levee and the Western Pacific Interceptor Canal [WPIC] West Levee), and along and north of the WPIC West Levee and Olivehurst Detention Basin (ODB) Ring Levee.

TRLIA has reevaluated the RD 784 levee system against the 500-year design water surface elevation to determine which levee segments would not meet this level of protection and identify appropriate improvements to increase protection of those areas to the 500-year level, ensure the levee system is adaptable to climate change, and address levee superiority issues. Based on the results of this evaluation, TRLIA proposes to implement improvements along segments totaling approximately 10 miles of the following existing levees:

- Yuba River South Levee (approximately 2 miles)
- Feather River East Levee (approximately 1.25 miles)
- Bear River Setback Levee and Bear River North Levee (approximately 1 mile)
- WPIC West Levee (approximately 5.9 miles)
- ODB Ring Levee (approximately 300 feet)

Improvements along these levees would include raising the levees by up to approximately 2 feet to provide 3 feet of freeboard above the design water surface elevation, or sufficient height to contain wind generated waves, and constructing cutoff walls, seepage berms, landside blankets, and/or relief well systems to address levee under-seepage issues in specific locations.

The proposed project also includes extending the WPIC West Levee by approximately 1.8 miles to the north and east by constructing a new levee embankment along the east side of State Route (SR) 70 and south side of Olivehurst to connect to SR 65. In addition, approximately 1 mile of existing embankment along the western edge of the Goldfields would be modified to create a levee embankment.

ES.4. Project Alternatives

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to a project or to the location of a project that would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts (State CEQA Guidelines, Section 15126.6). In addition to evaluating the required No-Project Alternative, the alternatives to the proposed project considered in this Draft EIR were developed based on information gathered during hydraulic analyses and preliminary project design and are summarized below.

Alternative 1: No WPIC West Levee Extension

Under this alternative, the existing WPIC West Levee would not be extended by constructing approximately 9,500 feet of new levee embankment north along the east side of SR 70, then east along the south side of Olivehurst to SR 65. All other components of the proposed project would be constructed, including levee construction along the western edge of the Goldfields and levee

raising and seepage remediation along the existing Yuba River South Levee, Feather River East Levee, Bear River Setback Levee, Bear River North Levee, and WPIC West Levee.

Alternative 2: No Goldfields West Levee

Under this alternative, approximately 5,000 feet of existing mine tailing embankment along the southwest edge of the Goldfields would not be modified using existing tailing materials in the Goldfields to create a levee embankment with appropriate height and geometry for flood protection purposes. All other components of the proposed project would be constructed, including extending the WPIC West Levee and levee raising and seepage remediation along the existing Yuba River South Levee, Feather River East Levee, Bear River Setback Levee, Bear River North Levee, and WPIC West Levee.

ES.5. Areas of Controversy

TRLIA issued a Notice of Preparation (NOP) for this Draft EIR on July 9, 2020 in compliance with State CEQA Guidelines. After issuing the July 9, 2021 NOP, TRLIA added a component to the proposed project. Although a proposed project at the scoping stage is typically not well defined and frequently changes during and even after the scoping period, TRLIA took the extra step to issue a revised NOP on August 2, 2021 that incorporated the new project component.

TRLIA provided both NOPs to local, State, and Federal agencies, as well as to potentially interested organizations and Native American Tribes. The NOPs were also posted on TRLIA's Web site and the CEQAnet Web portal. Notice of the original public scoping period (July 9 – August 9, 2021) and the scoping period extension (to September 1, 2021) were published in the Appeal-Democrat on July 9 and August 3, 2021. A scoping notice also was mailed to owners of property within the project footprint or a residence in an adjacent area. An in-person and virtual scoping meeting was held July 20, 2021.

Appendix A, “Notices of Preparation and Scoping Comments,” of this Draft EIR contains both NOPs and written comments that were received from five State agencies, three local agencies, two attorneys representing private landowners, and one private individual. The State agency letters primarily discussed the agency's potential role as a responsible agency, highlighted CEQA requirements related to the environmental analysis, and identified potential needs for agency permits and authorizations. Several commenters, including one State agency, two local agencies, and both of the attorneys representing private parties, expressed concern regarding potential hydraulic-related effects on adjacent and downstream areas outside of the RD 784 urban levee system and requested that the Draft EIR include a hydraulic impact analysis that evaluates such potential effects. Potential hydraulic impacts are the only known area of controversy at this time.

ES.6. Issues to be Resolved

There are no issues to be resolved.

ES.7. Public Review and Final EIR

A notice of completion for this Draft EIR has been filed with the State Clearinghouse, in accordance with the State CEQA Guidelines (Section 15085), and a notice of availability of this Draft EIR has been posted in accordance with State CEQA Guidelines (Section 15087). The public review period for providing comments on this Draft EIR is from Wednesday, January 19, 2022 to close of business at 5 p.m. on Friday, **March 4, 2022**.

This Draft EIR is being distributed for a 45-day public review period to responsible and other potentially interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views regarding the contents of the Draft EIR and that information pertinent to permits and approvals is provided to decision makers and CEQA responsible and trustee agencies by the lead agency.

This document is available for public review, by appointment only, between 8:00 a.m. and 4:30 p.m. in TRLIA's office, located at 1114 Yuba Street, Suite 218, Marysville, California 95901. Please contact Ms. Leslie Wells at 530-749-7841 to make an appointment. This document is also available at <https://www.trlia.org>, by navigating to "Documents" from the home page and "Environmental Docs" from the list of relevant pages on the left side of the Documents page.

The "Environmental Docs" page can also be accessed directly *via* this link:

https://www.trlia.org/i_want_to/download_view/documents/environmental_docs.php. The 500-year Project is at the bottom of the list under "Environmental Docs."

The Draft EIR is also available for review at the following location:

Yuba County Public Library, Marysville Branch

303 Second Street

Marysville, CA 95901

Telephone: 530-749-7380

Library hours (subject to change): by appointment only Tuesday–Friday 12:00–5:45 p.m.

If a reviewer is unable to access the Draft EIR electronically or visit the TRLIA office or Yuba County Library, a paper copy can be requested from Anne King at 916-382-7833 or aking@geiconsultants.com.

TRLIA will conduct a virtual public meeting on February 8, 2022 at 5:30 p.m. to solicit input from the public and public agencies on the Draft EIR. Access to the virtual meeting will be available by:

- Telephone at 213-338-8477
- Zoom at <https://zoom.us/join> (meeting ID 853 6585 1583, passcode 803554)
- Zoom *via* the following direct link:
<https://downeybrand.zoom.us/j/85365851583?pwd=UEo0eGtVcVVpZWp3VjFCMDhPTDk3QT09>.

Written comments on this Draft EIR must be received by the close of business (5 p.m.) on **March 4, 2022**. Written comments may be mailed, faxed, or e-mailed to:

Leslie Wells, Executive Assistant
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
Telephone: 530-749-7841
Fax: 530-749-6990
E-mail: lwells@co.yuba.ca.us

Please indicate “500-year Project EIR” in the subject line. For comments by agencies and organizations, please include the name of a contact person for the agency or organization. If comments are provided *via* e-mail, please include the project title in the subject line, attach comments in Microsoft Word format, and include the commenter’s U.S. Postal Service mailing address. All comments received, including names and addresses of commenters, will become part of the official administrative record and may be available to the public.

Upon completion of the public review period, TRLIA will review the comments received. Comments regarding environmental issues received in response to the Draft EIR will be addressed in a response to comments document, which, together with the Draft EIR and any changes to the text made in response to comments, or initiated by staff, will constitute the Final EIR. The TRLIA Board of Directors will review the Final EIR and consider all staff recommendations and public testimony prior to certifying the EIR and deciding whether to approve or deny the proposed project at a public TRLIA Board of Directors meeting.

If TRLIA approves the project even though significant impacts identified by the EIR cannot be mitigated, TRLIA must state in writing the reasons for its actions. In this event, a Statement of Overriding Considerations must be included in the administrative record of the project approval and mentioned in the Notice of Determination (State CEQA Guidelines, Section 15093(c)).

ES.8. Summary of Environmental Impacts and Mitigation Measures

CEQA requires that the environmental analysis contained in the Draft EIR also include a summary of the proposed project and its consequences, including identification of each potentially significant effect of the proposed project, the level of effect the proposed project may have, and proposed mitigation measures for all potentially significant or significant environmental effects. A full description of each of the proposed impacts and mitigation measures is found in Chapter 3, “Environmental Setting, Impacts, and Mitigation Measures,” and a summary is provided in **Table ES-1**.

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.2 Aesthetics			
<p>3.2-1 Degradation of Visual Character and Quality. Temporary, short-term impacts during construction would be less than significant for portions of the project site where existing levees occur or no sensitive viewers are located nearby; this includes all portions of the project site except the WPIC West Levee Extension. Because views from some residences adjacent to the WPIC West Levee Extension would be substantially altered during and after construction, the temporary and permanent aesthetic impacts in this portion of the project site would be potentially significant.</p>	Potentially significant	<p>Mitigation Measure 3.2-1a: Minimize Temporary Visual Effects during WPIC West Levee Extension Construction adjacent to Residences.</p> <p>Three Rivers Levee Improvement Authority (TRLIA) will locate staging and material storage areas as far away from residences adjacent to the WPIC West Levee Extension as feasible. Where construction, staging, or storage areas are 300 feet or closer to residences, to the extent feasible, TRLIA will require its construction contractor to install and maintain a temporary 6-foot-tall, screened fence or other visual barrier at the edge of the construction, staging, or storage area, between the work area and the residence(s).</p> <p>Mitigation Measure 3.2-1b: Install Permanent Fencing or Vegetation Screening for Interested Residents Immediately Adjacent to the WPIC West Levee Extension.</p> <p>TRLIA will offer to install permanent fencing or vegetation outside the levee maintenance corridor for interested residents immediately adjacent to and with unobstructed views of the levee. TRLIA will not be responsible for maintenance or replacement of fencing or vegetation.</p>	Potentially significant and unavoidable
<p>3.2-2 New Source of Substantial Light or Glare. If the Feather River East Levee cutoff wall requires nighttime construction, lighting would be shielded and directed away from residences. Construction equipment for all project components could generate minor amounts of daytime glare. Because of the temporary, short-term nature, these impacts would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
3.3 Agriculture and Forestry Resources			
<p>3.3-1 Farmland Conversion. A narrow border of orchard totaling approximately 4 acres would be removed to construct the Goldfields West Levee. This represents a very small portion of the total area of the affected orchards and would be a less-than-significant impact. Approximately 14 acres of rice and 14 acres of orchard would be removed to construct the WPIC West Levee Extension. This impact would be potentially significant.</p>	Significant	<p>Mitigation Measure 3.3-1: Minimize Farmland Conversion to the Extent Practicable and Feasible.</p> <p>TRLIA and its design and construction contractor(s) will implement the following measures with regard to impacts to Farmland from the WPIC West Levee Extension portions of the project to minimize impacts on these lands:</p> <ul style="list-style-type: none"> ▪ When designing the levee improvements, minimize the width of the levee maintenance zone to reduce Farmland removal. ▪ To the extent available and feasible, establish and/or enhance agricultural use of lands in Yuba County that are not being actively cultivated or are suffering low yields due to infrastructure needs or other challenges at the time WPIC West Levee Extension construction occurs. Agricultural use will be established on uncultivated land at a 1:1 ratio (i.e., 1 acre on which agricultural use is established to 1 acre of Farmland removed from agricultural use). This may be accomplished by leasing unfarmed TRLIA-owned lands to parties who will be responsible for maintaining the lands in agricultural use. Alternatively, or in combination with establishment of agricultural use, agricultural production will be enhanced on existing agricultural land at a 2:1 ratio by providing infrastructure improvements or other enhancements to improve agricultural production. 	Potentially significant and unavoidable
<p>3.3-2 Loss of Forestland. The project would result in removal of less than 2 acres of forestland. This represents a small proportion of forestland on the project site and in the larger project vicinity. Therefore, this impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.4 Air Quality			
<p>3.4-1 Conflict with Applicable Air Quality Plan during Project Construction. Reactive organic gases (ROG), nitrogen oxides (NO_x), and particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM10) emissions generated during project construction would exceed Feather River Air Quality Management District (FRAQMD) thresholds of significance if all project components are constructed in 1 calendar year. If construction is spread over more than 1 calendar year and/or not all proposed components are constructed, ROG emissions thresholds would likely not be exceeded. However, NO_x and PM10 emissions thresholds are likely to be exceeded under any construction scenario. This impact would be significant.</p>	Significant	<p>Mitigation Measure 3.4-1a: Implement Best Management Practices to Reduce Emissions during Construction.</p> <p>TRLIA and its construction contractors will implement the following measures consistent with established FRAQMD Construction Phase Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Develop and submit a fugitive dust control plan to minimize fugitive dust emissions during project construction to FRAQMD for approval. ▪ Ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation. ▪ Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators to the extent feasible and practicable. ▪ Suspend all project grading operations when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures. ▪ Water or treat work areas with dust suppressants as necessary to prevent fugitive dust violations. Incorporate the use of FRAQMD-approved non-toxic soil stabilizers (e.g., as indicated in the most recent California Stormwater Quality Association Construction Best Management Practice [BMP] Handbook) according to manufacturer’s specifications to all inactive construction areas. ▪ Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. Travel time to water sources should be considered and additional trucks used if needed. ▪ Apply FRAQMD-approved chemical soil stabilizers (e.g., as indicated in the most recent California Stormwater Quality Association Construction BMP Handbook) 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. ▪ Cover onsite dirt piles or other stockpiled material when not in active use. ▪ Minimize the free fall distance and fugitive dust emissions associated with all transfer processes involving a free fall of soil or other particulate matter. ▪ Install wheel washers where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment will be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out. ▪ Frequently sweep paved streets (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site. ▪ Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage. ▪ Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering. <p>Mitigation Measure 3.4-1b: Develop Equipment Inventory that Reduces Exhaust Emissions and Document Equipment Use and Worker Vehicle Trips during Construction.</p>	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>TRLIA and its construction contractors will implement the following measures to reduce, track, and calculate construction-related project emissions, consistent with established FRAQMD Construction Phase Mitigation Measures.</p> <ul style="list-style-type: none"> ▪ Before construction activities begin, TRLIA and its construction contractors will compile a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that will be used an aggregate of 40 or more hours during construction and provide the inventory to FRAQMD for approval. To the extent feasible, this equipment inventory will demonstrate that the heavy-duty off-road equipment to be used during construction (including owned, leased and subcontractor equipment) will achieve a project-wide fleet-average of 5% ROG reduction, 20% NOx reduction, and 45% PM reduction compared to the most recent California Air Resources Board (CARB) fleet average at time of construction. Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB-approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), aftertreatment products, and/or other options as they become available. ▪ Data regarding construction activities will be collected and reported to FRAQMD on a monthly basis and used to calculate project emissions after construction activities are complete. Data collected during project construction will include the following items: <ul style="list-style-type: none"> ○ Construction equipment <ul style="list-style-type: none"> • Number of pieces of each equipment type • Model year, engine horsepower and tier, and hours of operation for each equipment type ○ Haul trucks (heavy-duty trucks) <ul style="list-style-type: none"> • Number of heavy-duty haul truck trips • On-road and off-road trip distance for haul truck trips ○ Construction workers <ul style="list-style-type: none"> • Number of construction workers per day ○ Total volume of cut/fill <p>Mitigation Measure 3.4-1c: Calculate Construction Emissions and Contribute to FRAQMD Off-Site Mitigation Program</p> <p>TRLIA will pay a deposit to FRAQMD, to be determined at the time the project is approved, for contribution to the FRAQMD Off-site Mitigation Fund. This deposit will be held by FRAQMD and applied toward the final off-site mitigation amount to be paid after project construction is complete.</p> <p>Total construction emissions will be calculated at the end of construction activities. Using these calculations, TRLIA will make a final payment to the FRAQMD Off-Site Mitigation Fund to offset project emissions that exceed FRAQMD thresholds.</p>	
<p>3.4-2 Conflict with Applicable Air Quality Plan during Project Operations and Maintenance. Regular operations and maintenance (O&M) following construction would be similar to current conditions. The increase in extent of O&M activities to include the new levee segments would represent a very small proportion of overall O&M activities and would generate minimal</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
additional air quality emissions that would not exceed FRAQMD thresholds. This impact would be less than significant .			
3.4-3 Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant from Construction Activities. Construction-related ROG, NOx, and PM10 emissions would exceed FRAQMD's threshold of significance. As a result, the project would result in cumulatively considerable emissions of criteria air pollutants with nonattainment/ nonattainment-transitional status in Yuba County. This impact would be significant .	Significant	Mitigation Measure 3.4-1a: Implement FRAQMD Construction Phase Mitigation Measures. Mitigation Measure 3.4-1b: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions. Mitigation Measure 3.4-1c: Contribute to FRAQMD Off-Site Mitigation Program.	Less than significant
3.4-4 Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant from Operations. O&M activities following construction would be similar to current conditions. The increase in extent of O&M activities to include the new levee segments would represent a very small proportion of the overall O&M activities and would generate minimal additional air quality emissions. Therefore, implementing O&M activities would not contribute to an existing or projected air quality violation. This impact would be less than significant .	Less than significant	No mitigation is required.	Less than significant
3.4-5 Expose Sensitive Receptors to Substantial Pollutant Concentrations. Due to the close proximity of sensitive receptors to some portions of the project site, the dose (i.e., concentration levels) to which nearby receptors would be exposed could be substantial. This impact would be potentially significant .	Potentially Significant	Mitigation Measure 3.4-1a: Implement FRAQMD Construction Phase Mitigation Measures. Mitigation Measure 3.4-1b: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions.	Less than significant
3.5 Biological Resources			
3.5-1 Impacts on Special-status Plants. Construction activities would include fill placement and other ground disturbance in habitat that may be suitable for special-status plants and could result in direct loss of individuals and indirectly affect adjacent occupied habitat. This would be a potentially significant impact.	Potentially Significant	Mitigation Measure 3.5-1: Minimize Impacts of Special-status Plants and Compensate for Unavoidable Impacts. TRLIA and its construction contractor(s) will implement the following measures to reduce potential effects on special-status plants associated with the Goldfields West Levee, WPIC West Levee improvements, and WPIC West Levee Extension: <ul style="list-style-type: none">▪ Within 1 year before project-related disturbance occurs in or immediately adjacent to areas with potential to support special-status plants, a qualified biologist or botanist familiar with the target species will conduct a focused survey of suitable habitat for Dwarf downingia, Ahart's dwarf rush, legenera, woolly rose-mallow, Baker's navarretia, and Sanford's arrowhead in and within 50 feet of the project disturbance area. The surveys will be conducted during the specific blooming period for the relevant species. If no individuals are found, no further mitigation is required.▪ If special-status plants are detected, impacts will be avoided wherever possible by considering plant locations during development of the final project design, including the levees, maintenance zones, and construction staging areas and access routes. A 50-foot protective barrier will be established and maintained during construction to minimize impacts on occupied habitat that will be preserved adjacent to the construction footprint.	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>3.5-2 Impacts on Federally Listed Vernal Pool Invertebrates. Seasonal wetlands that provide suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp could be directly filled by constructing the WPIC West Levee Extension. This could result in direct loss of individuals and indirectly affect additional adjacent occupied habitat. This would be a potentially significant impact.</p>	Potentially Significant	<ul style="list-style-type: none"> ▪ If direct loss of special-status plants cannot be avoided, a mitigation and monitoring plan will be developed and implemented to ensure no net loss of habitat occupied by the affected species. ○ If relocation efforts are part of the mitigation and monitoring plan, the plan will outline methods for relocating unavoidable populations to other areas of suitable habitat that occur onsite or at a nearby suitable location in the project vicinity that will not be subject to future adverse disturbances. The mitigation and monitoring plan will include details about the relocation methods to be used, receptor site preparation, post-transplantation monitoring, and long-term protection and management. Relocation efforts will be deemed successful when occupation by the relocated species is demonstrated in an area at least equal to that from which they were removed. ○ If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation and monitoring plan. Specifically, the plan will list responsible parties for long-term management, conservation easement holders, and long-term management requirements as appropriate to target the preservation of long-term viable populations. Off-site mitigation will be provided in an amount at least equal to the area of occupied habitat that is removed during project construction. <p>Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion. (See full measure under “3.8 Geology, Soils, and Paleontological Resources”)</p> <p>Mitigation Measure 3.5-2: Minimize Impacts on Federally Listed Vernal Pool Invertebrates and Compensate for Unavoidable Impacts.</p> <p>TRLIA and its construction contractor(s) will implement the following measures to minimize and compensate for potential effects on vernal pool fairy shrimp and vernal pool tadpole shrimp associated with the WPIC West Levee Extension:</p> <ul style="list-style-type: none"> ▪ During at least one year of normal rainfall before project-related disturbance occurs in the WPIC West Levee Extension portion of the project site, a qualified biologist will map areas of suitable ponded habitat and record the hydroperiod to determine if the seasonal wetlands are suitable for vernal pool fairy shrimp or vernal pool tadpole shrimp. ▪ If suitable habitat is identified, impacts will be avoided wherever possible by considering locations of suitable habitat during development of the final project design, including the levee, maintenance zone, and construction staging areas and access routes. A 50-foot protective barrier will be established and maintained during construction to minimize impacts on occupied habitat that will be preserved adjacent to the construction footprint. ▪ If impacts on all suitable habitats cannot be avoided, TRLIA will coordinate with U.S. Fish and Wildlife Service (USFWS) to develop and implement an appropriate mitigation strategy to compensate for unavoidable habitat loss. Mitigation will likely include purchase of vernal pool habitat at a USFWS-approved mitigation bank. Appropriate mitigation ratios will be developed during consultation with USFWS but are anticipated to be based on 3 acres of habitat preservation and 1 acre of habitat creation for each acre of habitat loss. <p>Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion. (See full measure under “3.8 Geology, Soils, and Paleontological Resources”)</p>	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>3.5-4 Impacts on Valley Elderberry Longhorn Beetle. The Goldfields West Levee portion of the project site supports numerous elderberry shrubs and shrub clumps that provide suitable habitat for valley elderberry longhorn beetle. Elderberry shrubs also occur along the WPIC. Project construction would result in removal and potential indirect effects on elderberry shrubs and potential loss of valley elderberry longhorn beetle. This would be a potentially significant impact.</p>	Potentially Significant	<p>Mitigation Measure 3.5-4: Minimize Impacts on Valley Elderberry Longhorn Beetle and Compensate for Unavoidable Impacts.</p> <p>TRLIA and its construction contractor(s) will implement the following measures, consistent with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017b) to minimize and compensate for unavoidable effects on valley elderberry longhorn beetle:</p> <ul style="list-style-type: none"> ▪ Elderberry shrub removal will be avoided wherever possible by considering shrub locations during development of the final project design, including the levee, maintenance zone, and construction staging areas and access routes. ▪ Before project activities begin, worker awareness training will be provided by a qualified biologist to inform on-site project personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance. ▪ Before project activities near elderberry shrubs begin, all areas to be avoided during construction activities will be fenced and/or flagged as close to construction limits as feasible. ▪ A qualified biologist will monitor the work area at intervals appropriate to the project to assure that all avoidance and minimization measures are implemented. ▪ To the maximum extent feasible, activities that occur within 165 feet of an elderberry shrub will occur between November and February and will avoid removal of branches and stems greater than 1 inch in diameter. ▪ Elderberry shrubs that must be removed to accommodate project construction will be transplanted, if feasible to safely do so, given potential access challenges related to their location. The transplant location will be suitable for elderberry growth and reproduction and as close as possible to the shrubs' original location. Transplanting will be implemented as follows: <ul style="list-style-type: none"> ○ If feasible, elderberry shrubs will be transplanted when they are dormant (November through the first 2 weeks in February) and after they have lost their leaves. ○ A qualified biologist will conduct an exit hole survey immediately before transplanting and will be onsite during transplanting activities. The biologist will record the number of exit holes found on each shrub, the precise location of each shrub that is removed, and the precise transplant location for each shrub. This information will be reported to USFWS and the CNDDDB. ▪ Compensatory mitigation will be provided for elderberry shrub removal. An appropriate mitigation approach will be developed and implemented in consultation with USFWS to ensure no net loss of habitat for valley elderberry longhorn beetle. Mitigation will include replacing individual elderberry shrubs and/or riparian habitat at ratios ranging from 1:1 to 3:1, depending on circumstances of the elderberry shrub distribution and habitat in which the shrubs occur. 	Less than significant
<p>3.5-5 Impacts on Special-status Reptiles. Portions of the project site provide potentially suitable for western pond turtle and giant gartersnake. If individual pond turtles occur in the aquatic habitat on or adjacent to the project site, they are likely to avoid areas of disturbance, and potential for placing levee fill to result in injury or mortality would be low and limited to a very small number of individuals. Therefore, impacts on western pond turtle would be less than significant. Construction activities could result in displacement,</p>	Potentially Significant	<p>3.5-5: Minimize Potential for Death and Injury of Giant Gartersnake and Minimize and Compensate for Permanent Habitat Loss.</p> <p>TRLIA and its construction contractor(s) will implement the following measures to reduce potential impacts on giant gartersnake during WPIC West Levee improvements and WPIC West Levee Extension construction:</p> <ul style="list-style-type: none"> ▪ Impacts on aquatic and upland habitat for giant gartersnake will be avoided wherever possible by considering locations of suitable habitat during development of the final project design, including the levee, maintenance zone, and construction staging areas and access routes. 	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
injury, or death of giant gartersnakes. Because of the local and range-wide status of giant garter snake, project-related death or injury of an individual and permanent loss of suitable upland habitat would be potentially significant impacts.		<ul style="list-style-type: none"> ▪ Unless specifically authorized by USFWS and California Department of Fish and Wildlife (DFW), construction activities within 200 feet of aquatic habitat within the WPIC or rice fields in the levee extension area will not begin before May 1. Initial ground disturbance in these areas will be completed by October 1, and construction activities will be completed as soon thereafter as possible. ▪ A worker awareness training program will be conducted for all construction personnel before they start work on the project. The program will summarize relevant laws and regulations that protect biological resources and discuss sensitive habitats and species, the role of biological monitors, applicable avoidance and minimization measures to protect species and habitats, and the penalties for not complying with such measures. ▪ Construction areas will be surveyed for giant gartersnakes by a qualified biologist within 24 hours before on-site project activities begin. Additional surveys will be conducted within 24 hours before initial ground disturbance begins. Surveys will be repeated after any lapse in construction activity of 2 weeks or longer. ▪ After initial ground disturbance is complete, a biological monitor will conduct weekly inspections of the construction area to ensure that impact avoidance and minimization measures are being implemented properly. ▪ No snakes will be harassed, harmed, or killed, and they will be allowed to leave the construction area on their own volition. If a possible giant gartersnake is observed retreating into an underground burrow or is otherwise stationary within the construction area, construction activities will not begin or will cease immediately in the reach where the snake is present, the biological monitor will be notified immediately, and appropriate actions will be taken to minimize potential for harm of the snake. USFWS and DFW will be notified immediately to report any giant gartersnake encounters. ▪ After completion of construction activities, all temporary flagging, fencing, and/or barriers will be removed from the project site. All disturbed soil surfaces will be revegetated during the same construction season that disturbance occurs. Levee slopes, stability berms, fill areas, and other uplands disturbed during project activities will be hydroseeded with a quick-growing and sterile seed mix. ▪ TRLIA will coordinate with USFWS and DFW to develop and implement an appropriate mitigation strategy to compensate for habitat loss and potential take of giant gartersnake. Mitigation would likely include purchasing created giant gartersnake habitat at a USFWS- and DFW-approved mitigation bank. Appropriate mitigation ratios will be developed during consultation with USFWS and DFW but are anticipated to be based on 3 acres of mitigation habitat for every 1 acre of habitat permanently lost. Mitigation habitat will include aquatic and upland components at a ratio of 2 acres of upland for each acre of aquatic. 	
<p>3.5-6 Impacts on Special-status Birds. Construction activities could destroy occupied burrowing owl burrows or active nests of other special-status birds and injure or kill associated individuals. If active nests or occupied burrows are present in or near the construction areas, project-related disturbance (i.e., noise and visual disturbance) could result nest abandonment, reduced care of eggs or young, or premature fledging. This would be a potentially significant impact.</p>	Potentially Significant	<p>3.5-6a: Conduct Focused Surveys for Burrowing Owls and Avoid Loss of Occupied Burrows and Failure of Active Nests.</p> <p>To minimize potential effects of project construction and maintenance on burrowing owl, TRLIA will ensure that the following measures are implemented, consistent with the Staff Report on Burrowing Owl Mitigation (DFG 2012).</p> <ul style="list-style-type: none"> ▪ A qualified biologist will conduct focused surveys for burrowing owls, in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (DFG 2012). At a minimum, surveys will be conducted during the breeding season of the year in which ground-disturbing project activities begin, and one survey will be conducted within 10 days before on-site project construction or maintenance activities begin. 	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<ul style="list-style-type: none"> ▪ If occupied burrows are observed, protective buffers will be established and implemented. A qualified biologist will determine the appropriate buffer for each occupied burrow; the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the owl(s) to disturbance. A qualified biologist will monitor the occupied burrows during project activities and adjust buffers, if needed, to ensure their effectiveness. ▪ If it is not feasible to implement a buffer of adequate size and it is determined, in consultation with DFW, that passive exclusion of owls from the area of direct disturbance is an appropriate means of minimizing impacts, an exclusion and passive relocation plan will be developed and implemented in coordination with DFW. Passive exclusion will not be conducted during the breeding season (February 1–August 31), unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. ▪ If passive exclusion is conducted, each occupied burrow that is destroyed will be replaced with at least one artificial burrow on a suitable portion of the project site, or elsewhere on TRLIA-owned land that provides suitable burrowing owl habitat, that will not be subject to project impacts or maintenance activities that could have adverse effects on burrowing owl. 	
		<p>3.5-6b: Conduct Focused Surveys for Nesting Birds and Implement Buffers Around Active Nests.</p> <p>To minimize potential effects of project construction and maintenance on special-status birds and avoid violation of the Migratory Bird Treaty Act and California Fish and Game Code (FGC), TRLIA will ensure that the following measures are implemented:</p> <ul style="list-style-type: none"> ▪ If construction activity would begin during the bird nesting season (February 1–September 15), a survey for active bird nests will be conducted by a qualified biologist. The survey will cover all potential on-site and off-site nesting habitat within 500 feet of the construction footprint. The survey will be conducted no more than 14 days before the start of project activities. If a lapse in project-related activities of 14 days or longer occurs, another focused survey is required before project activities can be reinitiated. ▪ If any active nests are found, a qualified biologist will prepare a site-specific take avoidance plan to comply with the FGC. Measures may include but are not limited to nest-specific no-disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the species' line of sight from the nest tree. The avoidance/protection measures will be implemented before construction activities begin within 500 feet of an identified nest and continue until the nest is no longer active. ▪ If construction activity would begin during the Swainson's hawk nesting season (March 15–August 31), focused surveys for active Swainson's hawk nests will be conducted within 0.5 mile of the project site by a qualified biologist, in accordance with Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). To meet the minimum level of protection for the species, surveys will be completed for the two survey periods immediately before construction activities begin. If a lapse in project-related activities of 14 days or longer occurs, another focused survey is required before project activities can be reinitiated. ▪ If an active Swainson's hawk nest is found, a qualified biologist will prepare a site-specific take avoidance plan that includes measures to comply with CESA and the FGC. Measures may include but are not limited to nest-specific no disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as 	

Table ES-1. Summary of Impacts and Mitigation Measures

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		<p>staging equipment out of the species' line of sight from the nest tree. The avoidance/protection measures will be implemented before construction activities begin and continue until the birds are no longer reliant on the nest site.</p> <ul style="list-style-type: none"> ▪ If construction activity would begin during the white-tailed kite nesting season (March 1–August 31), a focused survey for active white-tailed kite nests will be conducted by a qualified biologist. The survey will cover all potential on-site and off-site nesting habitat within 0.25 mile of the project site. The survey will be conducted no more than 14 days before the start of project activities. If a lapse in project-related activities of 14 days or longer occurs, another focused survey is required before project activities can be reinitiated. ▪ If an active white-tailed kite nest is found, a qualified biologist will prepare a site-specific take avoidance plan that includes measures to comply with the FGC. Measures may include but are not limited to nest-specific no disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the species' line of sight from the nest tree. The avoidance/protection measures will be implemented before construction activities begin and continue until the birds are no longer reliant on the nest site. 	
<p>3.5-7 Impacts on Special-status Mammals. The project site is very unlikely to provide suitable roosting habitat for special-status bats. Individuals could forage over the project site, if suitable roost sites are present nearby, but project implementation would not disrupt foraging activities. This impact would be less than significant.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>3.5-8 Impacts on Sensitive Habitat. Up to approximately 6 acres of riparian habitat and 2 acres of seasonal wetland habitat that could support hardpan vernal pools would be removed during project construction. Most of the riparian habitat occurs in the Yuba Goldfields and is not directly associated with a natural waterway or other natural aquatic feature. However, riparian areas that would be affected support provide habitat for a variety of plant and wildlife species. In addition, vernal pool habitat is very scarce in the project vicinity. These impacts would be potentially significant.</p>	<p>Potentially Significant</p>	<p>Mitigation Measure 3.5-2: Minimize Impacts on Federally Listed Vernal Pool Invertebrates and Compensate for Unavoidable Impacts.</p> <p>Mitigation Measure 3.5-8: Minimize and Compensate for Loss of Sensitive Natural Communities.</p> <p>TRLIA and its construction contractor(s) will implement the following measures to minimize and compensate for riparian vegetation removal:</p> <ul style="list-style-type: none"> ▪ TRLIA and its construction contractor(s) will implement the following measures to reduce effects of the project alternatives on sensitive habitats: ▪ Impacts on riparian habitat will be avoided wherever possible by considering locations of riparian vegetation during development of the final project design, including the levees, maintenance zones, and construction staging areas and access routes. A fenced, 50-foot protective buffer will be erected and maintained during construction when feasible to minimize impacts on riparian habitat that will be preserved adjacent to the construction footprint. ▪ Unavoidable impacts on riparian habitat will be compensated at a minimum 1:1 replacement ratio based on the acreage removed to ensure no net permanent loss. Compensation may occur through purchase of credits from a mitigation bank or through installation, monitoring, maintenance, and preservation of replacement plantings onsite or at an appropriate location in the watershed. ▪ If vernal pools are not determined to provide suitable habitat for vernal pool crustaceans and compensation measures described in Mitigation Measure 3.5-1 do not apply, loss of vernal pools will be compensated at a 1:1 replacement ratio, based on the acreage removed. Compensation for loss of vernal pools will likely occur through the purchase of credits from a mitigation bank. 	<p>Less than significant</p>

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<p>3.5-9 Impacts on Federally and State-Protected Waters. Federally and/or State-protected waters on the project site are anticipated to include the WPIC and riverine habitat and seasonal wetlands in the WPIC West Levee Extension portion of the project site. Potential impacts on the WPIC are anticipated to be limited to repairing areas where the bank has sloughed and would result in very minor, if any, fill of waters. Constructing the WPIC West Levee Extension, however, would result in fill of approximately 2 acres of potential seasonal wetland habitat and approximately 0.25 acre of riverine habitat and could result in indirect impacts on adjacent waters. This would be a potentially significant impact.</p>	<p>Potentially Significant</p>	<p>Mitigation Measure 3.5-9: Minimize and Compensate for Loss of Federally or State-Protected Wetlands. TRLIA and its construction contractor(s) will implement the following measures to reduce effects on Federally and State-protected wetlands:</p> <ul style="list-style-type: none"> ▪ A mitigation plan will be prepared and implemented detailing how the loss of riparian and/or vernal pool habitats that cannot be avoided will be compensated. The mitigation plan will describe compensation ratios for acres lost, mitigation sites, a monitoring protocol, annual performance standards and final success criteria for created or restored habitats, and corrective measures to be applied if performance standards are not met. ▪ If mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan. Specifically, the plan will list responsible parties for long-term management, conservation easement holders, and long-term management requirements as appropriate to ensure long-term habitat viability and protection. <p>▪ A delineation of waters of the United States will be conducted according to methods established in the U.S. Army Corps of Engineers (USACE) wetlands delineation manual (Environmental Laboratory 1987) and Arid West Supplement (Environmental Laboratory 2008). The delineation will map and quantify the acreage of all jurisdictional habitats on the project site and will be submitted to USACE for verification. The delineation also will identify waters of the State.</p> <p>▪ Impacts on wetlands in grasslands of the eastern portion of the Alternative 4 footprint will be avoided or minimized wherever feasible by considering the locations of seasonal wetlands during development of the final project footprint, including the levee and construction staging areas and access roads. Protective fencing will be erected and maintained to minimize impacts on seasonal wetlands that will be preserved adjacent to the construction footprint.</p> <p>▪ Impacts on jurisdictional waters will be avoided wherever possible by considering locations of waters during development of the final project design, including the levees, maintenance zones, and construction staging areas and access routes.</p> <p>▪ If impacts on waters of the United States cannot be avoided, a permit will be obtained from USACE under Clean Water Act Section 404 and Section 401 certification will be obtained from the Central Valley Regional Water Quality Control Board (CVRWQCB), if required. All requirements of any permits obtained will be implemented.</p> <p>▪ Unavoidable permanent fill will be replaced or restored on a “no-net-loss” basis. The specific acreages, locations, and methods used for such replacement or restoration will be agreeable to USACE and the CVRWQCB (depending on agency jurisdiction), as determined during the Section 401 and Section 404 permitting processes, respectively, if applicable. Compensation for loss of seasonal wetlands and freshwater marsh will likely occur through the purchase of credits from a USACE-approved mitigation bank.</p> <p>▪ If waters of the United States will be filled, a wetland mitigation plan will be prepared and implemented detailing how the loss of aquatic functions will be replaced. The mitigation plan will describe compensation ratios for acres filled. If mitigation credits are not available, the plan will also describe mitigation sites, a monitoring protocol, annual performance standards, and final success criteria for created or restored habitats, and corrective measures to be applied if performance standards are not met.</p>	<p>Less than significant</p>

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Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<ul style="list-style-type: none"> ▪ If mitigation includes the dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan. Specifically, the plan will list responsible parties for long-term management, conservation easement holders, and long-term management requirements as appropriate to provide long-term habitat viability and protection. <p>Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion. (See full measure under “3.8 Geology, Soils, and Paleontological Resources”)</p> <p>Mitigation Measure 3.10-1: Implement a Spill Prevention Control and Countermeasures Plan and Other Measures to Reduce the Potential for Environmental Contamination during Construction Activities. (See full measure under “3.10 Hazards and Hazardous Materials”)</p>	
<p>3.5-10 Impacts on Fish and Wildlife Movement Corridors and Nursery Sites. The project site is part of a much larger extent of residential development, agricultural land, grassland, and river and creek corridors. Project activities would not substantially interfere with the movement of native wildlife because activities would be limited to a small proportion of the overall corridor width and would not substantially impede upstream or downstream wildlife movement. The project site also does not support important nursery sites. This impact would be less than significant.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>3.6 Cultural Resources</p>			
<p>3.6-1 Substantial Adverse Change in the Significance of a Historical Resource or an Archaeological Resource. The Goldfields West Levee portion of the project site overlaps a very small portion of the Yuba Goldfields Historic District. Levee construction would not cause major modifications to the Historic District or its contributing resources, and the Historic District would retain its overall appearance and feeling and continue to convey its historical significance. Therefore, this would be a less than significant impact. One pre-contact archaeological site is known from immediately adjacent to the Feather River Easy Levee portion of the project site. Because disturbance in this area would be limited to the levee crown, the site would not be impacted by project activities. Though unlikely, it is possible buried historical or archaeological resources are present on the project site. If encountered during project-related, ground-disturbing activities, these resources could be substantially affected. This would be a potentially significant impact.</p>	<p>Potentially Significant</p>	<p>Mitigation Measure 3.6-1a: Conduct Additional Cultural Resources Inventory.</p> <p>Once TRLIA is in possession of property either through fee ownership or legal possession, whichever comes first, TRLIA will implement the following measures to reduce effects of the project on unknown archaeological sites:</p> <ul style="list-style-type: none"> ▪ In culturally sensitive areas, not limited to but including those identified by interested Native American Tribes (defined herein as Tribes identified by the Native American Heritage Commission (NAHC) for this project area and who have expressed interest in the project), no ground-disturbing activities, such as archaeological testing, in-fill, ground-disturbing construction, minor earth-moving activities, or any other form of ground-disturbing activities, will be conducted until after a consultant who meets the Secretary of the Interior’s Professional Qualifications Standards and who has expertise in geoarchaeological studies has conducted a geoarchaeological study of the project site (the area in which the project may have direct physical effects on the environment, including cultural resources). The geoarchaeological study will include review of relevant background information, such as geotechnical reports, geological and soil maps, levee construction plans, and previous archaeological/cultural studies, to assess the archaeological sensitivity and relative potential for buried archaeological deposits to occur in different parts of the project site, and evaluation of the nature and extent of project-related earth disturbances in areas where the sensitivity for buried sites, including any potentially disturbed buried sites, appears to be elevated. The archaeologists conducting the study will review any existing cores from geotechnical borings in the presence of Native American Monitors and include the analyses in their report. ▪ If the findings of the geoarchaeological study described above suggest there may be Holocene age soils that are sensitive for archaeological materials and taking into consideration information and recommendations 	<p>Less than significant</p>

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		<p>provided by interested Native American Tribes and the geoarchaeologist, geophysical studies such as ground-penetrating radar may be conducted.</p> <ul style="list-style-type: none"> ▪ The archaeologists conducting the geoarchaeological study will consult with interested Native American Tribes both prior to conducting the study and prior to completing the draft of their geoarchaeological report. Interested Native American Tribes will be provided drafts of the scope of work and the draft and draft final technical reports for comment. Any comments and recommendations made by interested Native American Tribes will be documented in the project record. Paid monitors from interested Native American Tribes will accompany the team during survey work, and the archaeologist conducting the study will document Native American monitor comments in their survey records. Recordation of Native American resources will be conducted in a respectful manner consistent with the behaviors identified by the Native American Monitor. ▪ Interested Native American Tribes will be provided the draft and draft final survey report for comment. Any comments and recommendations from interested Native American Tribes will be documented in the project record and integrated into the report. For any recommendations made by interested Native American Tribes which are not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report. ▪ Minor ground-disturbing activities including but not limited to installation of fencing, soil tests, ground-water test bores, and geotechnical bores, may be conducted in locations outside of identified culturally sensitive areas prior to conducting the studies identified above. Culturally sensitive areas include but may not be limited to areas identified as culturally sensitive on maps provided by interested Native American Tribes and those areas that may be determined to be sensitive as a result of technical archaeological studies conducted in compliance with the mitigation measures identified in this document. ▪ Once the geoarchaeological study is complete, professional cultural resources specialists (an archaeologist and historian meeting the Secretary of the Interior’s Professional Qualifications Standards for their specialty) will complete a pedestrian survey of the project site to identify archaeological and historical resources on the project site consistent with the Secretary of Interior’s Standards and Guidelines for Archeology and Historic Preservation (48 Federal Register 44716–44740). A pedestrian survey will be conducted, to the extent feasible, at a time of year that has acceptable ground visibility. Paid Native American Monitors from interested Native American Tribes will be offered the opportunity to accompany the archaeologists during survey work to assist in identifying known and unknown resources. Prior to initiation of the survey, the archaeologists will meet with the Native American monitors and the Tribal representatives from interested Native American Tribes to discuss and agree on survey procedures, protocols, dispute resolution and behaviors in the presence of Tribal cultural resources. Also prior to the survey, the archaeologists will provide interested Native American Tribes with copies of existing cultural resources reports and other existing data such as North Central Information Center (NCIC) records, with the exception of confidential information provided by other Native American Tribes. The surveyors will walk transects spaced no more than 35 feet apart. During the survey, the archaeologists will record all resources, including features, isolates, and previously recorded sites, as necessary and will document any recommendations made by interested Native American Tribes. All resources, including archaeological sites, cultural landscapes, historical structures and buildings, historical engineering features, and cultural resources with significance to Native American communities will be documented in accordance with State and Federal guidance including National Register Bulletin 30 (Guidelines for Evaluating and Documenting Rural Historic Landscapes), Bulletin 36 (Guidelines for Evaluating and Registering Archaeological Properties), and Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties); National Park Service Preservation Brief 36 (Protecting 	

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		<p>Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes) and using the Advisory Council on Historic Preservation (ACHP) Native American Traditional Cultural Landscapes Action Plan for further guidance. Recordation of historic structures, buildings, objects, and sites will be accomplished by using the California Department of Parks and Recreation 523 Site Record forms. Prior to preparation of the draft report, interested Native American Tribes will be invited to meet with the cultural resources specialists who will prepare the report to discuss the views of the Tribe(s) on resource descriptions and significance. Interested Native American Tribes will be provided a reasonable period of time to comment on all draft and draft final forms and cultural reports and will be provided final reports for its records. Any comments and recommendations made by interested Native American Tribes will be documented in the project record. For any recommendations made by interested Native American Tribes and not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report. All reports, site location information, and other information confidential pursuant to State and Federal law, and that are identified by interested Native American Tribes as confidential, will be treated as confidential information by TRLIA.</p> <ul style="list-style-type: none"> ▪ All previously known and recorded resources will be delineated. Both the horizontal and the vertical extent of the cultural resources area will be determined and demarcated. The delineation will test for the presence and absence of cultural material, and then map the full extent of the cultural site without damaging its integrity or context. First, the horizontal extent will be determined. If cultural resources are found, the test program will close the unit and continue to define the horizontal extent until no resources are observed and a sterile unit is noted. At that time, a geoarchaeological and archaeological study will be conducted that will include keyholing the cultural resource area to determine its vertical extent. The site boundary will be recorded using Geographic Positioning System (GPS) and the site boundary will be flagged to include a 100-foot buffer. ▪ Concerning scientific handling, testing, or field or laboratory analysis of archaeological sites and materials, TRLIA will consult with interested Native American Tribes and USACE to identify an acceptable procedure. TRLIA will assume for the purposes of this project that National Historic Preservation Act (NHPA) Section 106 consultation will be approached in a manner consistent with the ACHP letter dated March 31, 2015, regarding resolution of adverse effects in the Feather River West Levee Project matter. However, TRLIA is not the lead agency for Section 106 compliance. TRLIA, as the lead agency under CEQA, will not require scientific handling, testing, or field or laboratory analysis, and will consider various types of mitigation including non-traditional approaches to treatment and will recognize the State policy in California Public Resources Code (PRC) Section 5097.991 that Native American remains and grave goods will be repatriated. ▪ Native American human remains, associated grave goods and items associated with Native American human remains that are subject to California PRC Code Section 5097.98 (see below) will not be subjected to scientific analysis, handling, testing or field or laboratory analysis without written consent from the Most Likely Descendant (MLD). If human remains are present, treatment will conform to the requirements of State law under California Health and Safety Code Section 7050.5 and PRC Section 5097.87, unless the discovery occurs on Federal land. TRLIA agrees to comply with other related State laws, including PRC Section 5097.9. ▪ TRLIA will provide interested Native American Tribes with all project-related cultural resources reports. This includes survey, inventory, testing, and excavation reports; a complete copy of the NCIC records search; any site records or reports that were generated by the NCIC record search and request; the NCIC invoice and the 	

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		<p>NCIC summary letter; and copies of any and all correspondence between TRLIA and the NAHC, California Office of Historic Preservation, and ACHP.</p> <ul style="list-style-type: none"> ▪ Interested Native American Tribes will be provided reasonable time to review and comment on the draft and draft final reports. Any comments made by interested Native American Tribes will be documented in the project record, and recommended revisions will be considered for inclusion in the final reports. For any recommendations made by interested Native American Tribes which are not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report. Records of all Native American consultation conducted under CEQA will be confidentially provided to the lead Federal agency responsible for compliance with Section 106 of the NHPA and the National Environmental Policy Act. ▪ Native American Representatives from interested Native American Tribes will be provided an opportunity to consult in cultural resource identification efforts, evaluation of effects, analysis of avoidance and design alternatives, and mitigation analysis. The Native American representatives will be allowed to review and comment on these analyses. Should any Native American cultural resources be encountered, resource documentation will take into consideration recommendations and comments made by interested Native American Tribes. These comments and recommendations will be documented in the project reports and in the resource records. For any recommendations made by interested Native American Tribes which are not adopted by TRLIA, a justification for why the recommendation was not followed will be provided in the report. ▪ TRLIA or a TRLIA representative may request additional information, or notify the appropriate Native American Tribe, if they disagree with identification, recommendations, or actions made by a Native American Monitor or Native American Representative. Similarly, a Native American Monitor or Native American Representative may notify or request additional information from TRLIA if they disagree with identification, recommendations, or actions made by TRLIA or one of its representatives. <ul style="list-style-type: none"> ○ Native American Representatives from interested Native American Tribes act as a representative of their Tribal government and must be consulted before any cultural studies or ground-disturbing activities begin. ○ Native American Monitors from interested Native American Tribes act as cultural stewards in the field or lab to preserve and protect the Tribe’s cultural interests, and will be scheduled during each phase of cultural resources work, including but not limited to field checks, survey, testing, excavation, and recovery work; and during construction-related activities, including geotechnical work, topsoil removal (stripping or grubbing), grading, trenching, backfilling, installation of underground infrastructure, levee build, installation of slurry ponds, and closeout activities. ○ Both Native American Representatives and Native American Monitors have the authority to identify sites or objects of significance to Native Americans and to request that work be stopped, diverted, or slowed if such sites or objects are identified within the direct impact area; however, only a Native American Representative can recommend appropriate treatment of such sites or objects. ▪ TRLIA’s qualified cultural resources specialists will prepare a report describing the consultation, identification, and inventory efforts as well as the results of the cultural resources study. Any Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines will also be identified during inventory efforts. The report format and content will be consistent with the California Office of Historic Preservation Archaeological Resources Management Reports guidelines as may be amended. The report text will include a detailed summary of Native American consultation including an integrated discussion of comments and recommendations made by interested Native American Tribes. Consistent with the California Register of Historical Resources (CRHR), TRLIA is committed to working with interested, culturally-affiliated 	

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		<p>Native American Tribes to identify and inventory any and all traditional cultural resources or historical resources that may qualify for listing in the CRHR including traditional cultural properties and cultural landscapes using methods consistent with State and Federal guidance including National Register Bulletin 30 (Guidelines for Evaluating and Documenting Rural Historic Landscapes), Bulletin 36 (Guidelines for Evaluating and Registering Archaeological Properties), and Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties); National Park Service Preservation Brief 36 (Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes) and using the ACHP's Native American Traditional Cultural Landscapes Action Plan for further guidance. If such resources are identified during the inventory, TRLIA will retain an ethnographer to evaluate and assess any potential direct, indirect, or cumulative impacts resulting from the proposed project. That evaluation will include information provided by Native American Monitors during identification and inventory efforts and relevant information provided by Native American Representatives during or through meetings, site visits, written correspondence, or telephone correspondence. Any information that is identified as confidential by a Native American Representative or Monitor will be separated into a confidential appendix that would be available only on a confidential basis to the Tribe providing the information and any State or Federal agencies or courts with jurisdiction.</p> <ul style="list-style-type: none"> ▪ TRLIA will take the following actions depending on the results of the geoarchaeological study, the geophysical study (if implemented based on geoarchaeological information and recommendations made by interested Native American Tribes), the pedestrian archaeological and Native American survey (conducted to the extent feasible, at a time of year that has acceptable ground visibility), the field review, the archaeological report, and all Native American consultation: <ul style="list-style-type: none"> ○ If the investigations described above identify sensitive areas on the project site, qualified archaeologists will conduct subsurface excavations in these areas and in any areas on the project site that are covered by dense vegetation or relatively recent fill. If any resources are encountered during these excavations, Extended Phase 1 excavations may be conducted to assess resource boundaries to reduce the chances that cultural resources would be disturbed during construction. Native American monitors from interested Native American Tribes will accompany the archaeologist during these excavations to identify and recommend appropriate treatment for cultural resources. ○ If the research suggests there may be Holocene age soils that are sensitive for archaeological materials, the geoarchaeologist will work with representatives and/or monitors from interested Native American Tribes and archaeologists to prepare and implement a test plan to assess the potential for subsurface cultural deposits. ○ If geophysical testing or other studies, analysis, or information suggests that there may be human remains, burials, or cultural features present, the geoarchaeologist will work with Native American representatives from interested Native American Tribes and the archaeologists to prepare and implement a test plan to assess the potential for subsurface human remains and cultural deposits. ○ Using the results of all studies and sensitivity analyses conducted by cultural resources specialists and recommendations from interested Native American Tribes, TRLIA and its representative will consult with the Institute for Canine Forensics or a similar organization to determine if a canine forensic survey of the project site is feasible and potentially useful. If the Institute for Canine Forensics recommends that a canine forensic survey is feasible and would be potentially useful, such a survey will be conducted. 	

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		<ul style="list-style-type: none"> ▪ TRLIA, in consultation with the MLD to be identified by the NAHC, will also develop a Burial Avoidance and Recovery Plan to be implemented if human remains or burial objects are observed during the cultural resources investigations. If human remains are discovered during these activities, TRLIA and the contractors will coordinate with the local county coroner and NAHC to make the determinations and perform the management steps prescribed in State law including California Health and Safety Code Section 7050.5 and PRC Section 5097.98. ▪ If identification efforts result in identification of sites considered to be religious, sacred, or ceremonial, TRLIA and interested Native American Tribes will consult on access by interested Native American Tribes to such sites in a way that is consistent with levee construction, operation, maintenance, and safety requirements. <p>Mitigation Measure 3.6-1b: Implement Construction-Related Inadvertent Discovery Plan Discovery Plan and Conduct Cultural Resource Awareness and Sensitivity Training.</p> <p>TRLIA and its construction contractor(s) will implement the following measures to reduce effects of the project on unknown archaeological sites:</p> <ul style="list-style-type: none"> ▪ TRLIA will include a construction-related inadvertent discovery plan in the construction contractor’s contract conditions, which must be finalized and approved before both in-fill and ground-disturbing construction activities begin. The construction-related inadvertent discovery plan will require the construction contractor to take the following actions if cultural resources such as bone, shell, artifacts, human remains, historic period structural features, architectural elements, bottles, ceramics, bricks, etc. are discovered after in-fill or ground-disturbing construction activities begin: <ul style="list-style-type: none"> ○ If potential archaeological resources, cultural resources, articulated, or disarticulated human remains are discovered by Native American Monitors, Native American Representatives, qualified cultural resources specialists or other project personnel during construction activities, work will cease in the immediate vicinity of the find, based on the apparent distribution of cultural resources, whether or not a monitor is present. A qualified cultural resources specialist and representatives and monitors from interested Native American Tribes will assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These recommendations will be documented in the project record. For any recommendations made by interested Native American Tribes which are not implemented, a justification for why the recommendation was not followed will be provided in the project record. ○ No construction activities will occur within 100 feet of an area under a stop work order. TRLIA will honor all reasonable requests by a Native American Monitor or Native American Representative to stop work in a specified area for 48 hours, or until Native American Representatives have provided a reasonable path for work to resume, whichever occurs first. ○ Native American monitors from interested Native American Tribes will be invited to monitor the vegetation grubbing, stripping, grading, or other ground-disturbing activities on the project site to determine the presence or absence of any cultural resources. ○ Following a finding that the discovery represents a potential historical or cultural resource, an archaeologist who meets the Secretary of Interior’s Standards for a Professional Archaeologist will delineate the resource according to industry-standard methods taking into consideration recommendations and findings of interested Native American Monitors or Tribal Representatives. Recordation of Native American resources will be conducted in a respectful manner consistent with the behaviors identified by the Native American Monitor. The delineation will identify and map the full extent of the site. Geoarchaeological and archaeological methods will be consistent with those described in Mitigation 	

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>Measure 3.6-1a. The site boundary will be recorded using GPS and the site boundary will be flagged to include a 100-foot buffer.</p> <ul style="list-style-type: none"> ○ Avoidance and preservation in place is the preferred manner of mitigating impacts to a cultural resource and may be accomplished by several means, including planning construction to avoid archaeological sites; incorporation of sites within parks, green-space, or other open space; covering archaeological sites, or; deeding a site into a permanent conservation easement; or other preservation and protection methods agreeable to consulting parties and regulatory authorities with jurisdiction over the activity. Recommendations for avoidance of cultural resources will be reviewed by TRLIA, interested Native American Tribes, and the appropriate agencies in light of factors such as costs, logistics, feasibility, design, technology, and social, cultural, and environmental considerations and the extent to which avoidance is consistent with project objectives. Avoidance and design alternatives may include realignment within the project area to avoid cultural resources, modification of the design to eliminate or reduce impacts to cultural resources, or modification or realignment to avoid highly significant features within a cultural resource. Native American Representatives will be allowed to review and comment on these analyses and will have the opportunity to meet with TRLIA and its representatives who have technical expertise to identify and recommend feasible avoidance and design alternatives, so that appropriate and feasible avoidance and design alternatives can be identified. ○ If the resource can be avoided, the construction contractor(s) and maintenance personnel, with monitors from interested Native American Tribes present, will install protective fencing outside the site boundary, including the buffer area, before construction restarts. The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area." Representatives from interested Native American Tribes and TRLIA will also consult to develop measures for long term management of the resource and routine operation and maintenance within culturally sensitive areas that retain resource integrity, including tribal cultural integrity, and including archaeological material, Traditional Cultural Properties, and cultural landscapes, in accordance with State and Federal guidance including National Register Bulletin 30 (Guidelines for Evaluating and Documenting Rural Historic Landscapes), Bulletin 36 (Guidelines for Evaluating and Registering Archaeological Properties), and Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties); National Park Service Preservation Brief 36 (Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes) and using the ACHP's Native American Traditional Cultural Landscapes Action Plan for further guidance. Use of temporary and permanent forms of protective fencing will be determined in consultation with Tribal Representatives from interested Native American Tribes. ○ If preservation in place using appropriate covering or capping is the selected approach, the construction contractor(s) and maintenance personnel will install geotechnical fabric as a protective cover to the surface of the resources and then cap or cover the resource with a layer of local or certified clean soil. A copy of the clean soil certificate will be provided to interested Native American Tribes before a resource is capped or covered. The layer of soil will be thick enough that construction activities will not penetrate the protective cap or otherwise disturb the resource. An archaeologist who meets the Secretary of Interior's Standards for a Professional Archaeologist and a Native American monitor must be present during installation of any protective barrier and capping of a resource. Representatives and monitors from interested Native American Tribes will also be invited and allowed to attend the installation and capping. Both temporary and permanent forms of resource capping will be determined in consultation with 	

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>interested Native Americans. The limits of the area to be capped will be demarcated in the field by a Native American Monitor in consultation with a TRLIA representative and cultural resources specialists.</p> <ul style="list-style-type: none"> ○ If avoidance is infeasible, a Treatment Plan that identifies how identified properties that have been determined to be eligible for the CRHR or National Register of Historic Places will be treated under CEQA will be prepared and implemented in consultation with TRLIA and interested Native American representatives (if the resources are prehistoric or Native American in nature). In all cases, treatment will be carried out with dignity and respect. Interested Native American Tribes will be consulted on the research approach, methods and whether burial or data recovery or alternate mitigation is culturally appropriate for the find. Alternative mitigation will be considered for cultural resources instead of burial and archaeological data recovery, curation, testing, and analysis. Work may proceed on other parts of the project site while treatment is being carried out to the extent it does not interfere with respectful treatment. ○ TRLIA and the MLD will implement the Burial Avoidance and Recovery Plan developed as a part of Mitigation Measure 3.6-1a if human remains or burial objects are observed during construction. If human remains are discovered during these activities, TRLIA and the contractors will coordinate with the local county coroner and NAHC to make the determinations and perform the management steps prescribed in California Health and Safety Code Section 7050.5 and PRC Section 5097.98. ○ For any treatment and plans, TRLIA will assume for the purposes of this project that NHPA Section 106 consultation will be approached in a manner consistent with the ACHP letter dated March 31, 2015, regarding resolution of adverse effects in the Feather River West Levee Project matter. However, TRLIA is not the lead agency for Section 106 compliance. TRLIA, as the lead agency under CEQA, will not require scientific handling, testing, or field or laboratory analysis, and will consider various types of mitigation including non-traditional approaches to treatment and will recognize the State policy in PRC Section 5097.991 that Native American remains and grave goods will be repatriated. ▪ A consultant and construction worker cultural resources awareness brochure and training program for all personnel involved in project implementation will be developed in coordination with interested Native American Tribes. The brochure will be distributed, and the training will be conducted in coordination with a qualified cultural resources specialists and representatives and monitors from interested Native American Tribes after the cultural resource studies are completed but before any stages of project implementation and construction activities begin on the project site. The program will include relevant information regarding sensitive archaeological resources, including applicable regulations and, protocols for avoidance and consequences for violations of State laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located within the project boundary and will outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The program will also underscore the requirement for confidentiality and culturally appropriate treatment of any find of significance to Native Americans and behaviors consistent with Native American Tribal values. ▪ Following completion of major construction activities, TRLIA and its consultant, in consultation with interested Native American Tribal Representatives, will prepare a report that documents what, if any, cultural resources or human remains were discovered during project implementation, how impacts to each resource (whether discovered during construction or during inventory and consultation) were avoided or what treatment was instituted, the condition of each resource after project implementation, recommendations for how additional impacts can be avoided, and recommendations for management of each resource. Interested Native 	

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>3.6-2 Disturbance of Human Remains, including Remains Interred Outside of Dedicated Cemeteries. Though unlikely, it is possible that undiscovered, buried, human remains are present on the project site and could be encountered during project-related, ground-disturbing activities. This would be a potentially significant impact.</p>	Potentially Significant	<p>American Tribes will be provided reasonable time to review and comment on the draft and draft final confidential report. Any comments made by interested Native American Tribes will be documented in the project record, and recommended revisions will be considered for inclusion in the final reports. For any recommendations made by interested Native American Tribes which are not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report.</p> <p>Mitigation Measure 3.6-1a: Conduct Additional Cultural Resources Inventory. Mitigation Measure 3.6-1b: Implement Construction-Related Inadvertent Discovery Plan Discovery Plan and Conduct Cultural Resource Awareness and Sensitivity Training.</p>	Less than significant
3.7 Energy			
<p>3.7-1 Cause Wasteful, Inefficient, or Unnecessary Consumption of Energy Usage. Project-related O&M activities would require a very minor increase in efforts and vehicle trips and equipment use compared to existing conditions. In addition, construction- and operation-related energy consumption would not be wasteful, inefficient, or unnecessary. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
3.8 Geology, Soils, and Paleontological Resources			
<p>3.8-1 Impacts from Seismic or Soil Hazards. The design of engineered project features is based on site-specific geotechnical evaluation that considers and minimizes potential seismic and soil hazards. Therefore, this impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
<p>3.8-2 Increased Risk from Erosion Hazard. Project-related earth-moving activities would result in temporary, short-term disturbance of soil and could expose disturbed areas to storm events. Rainfall of sufficient intensity could dislodge soil particles from the soil surface. If particles are dislodged and the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during summer could result in substantial loss of topsoil because of wind erosion. Depending on the severity of storm and wind events, soil erosion and topsoil loss could be substantial and is considered a potentially significant impact.</p>	Potentially Significant	<p>3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion.</p> <p>In addition to compliance with all applicable Federal, State, and local regulations, TRLIA will implement the following measures to further reduce construction-related erosion:</p> <ul style="list-style-type: none"> ▪ Construction activities would likely be subject to construction-related stormwater permit requirements of the National Pollution Discharge Elimination System (NPDES) program. Any permits by the CVRWQCB will be obtained by TRLIA before any ground-disturbing construction activity. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented that identifies BMPs to prevent or minimize the introduction of contaminants into surface waters. Such BMPs could include, but would not be limited to, silt fencing, straw bale barriers, fiber rolls, storm drain inlet protection, hydraulic mulch, and a stabilized construction entrance. The SWPPP will include development and implementation of site-specific structural and operational BMPs to prevent and control impacts on runoff quality, measures to be implemented before each storm event, inspection and maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means. ▪ Water (e.g., trucks, portable pumps with hoses) will be used to control fugitive dust during construction activities that could cause substantial wind erosion. 	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>3.8-3 Potential Damage to or Destruction of Unique Paleontological Resources. Installing relief wells and constructing cutoff walls would disturb sediments mapped at the surface as Holocene basin, natural levee, or channel, which have a high probability to include Modesto or Riverbank Formation deposits. These geologic units are considered to have high paleontological sensitivity and could include unique paleontological resources. If encountered during construction, such resources could be substantially affected. This would be a potentially significant impact.</p>	Potentially significant	<p>Mitigation Measure 3.8-3: Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan as Required.</p> <p>TRLIA and its construction contractor(s) will implement the following measures to minimize potential adverse effects on previously unknown, potentially unique, and scientifically important paleontological resources:</p> <ul style="list-style-type: none"> ▪ Before the start of any earthmoving activities, TRLIA will retain a qualified paleontologist or archaeologist to train all construction personnel involved with earthmoving activities that would disturb at least 5 vertical feet in areas of sensitive geologic deposits, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered. ▪ If paleontological resources are discovered during earthmoving activities, the construction crew will immediately cease work in the vicinity of the find and notify TRLIA. TRLIA will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines (SVP 2010). The recovery plan might include, but would not be limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by TRLIA to be necessary and feasible will be implemented before construction activities can resume at the site where the paleontological resources were discovered. 	Less than significant
3.9 Greenhouse Gas Emissions			
<p>3.9-1 Direct Emission of Greenhouse Gases from Construction Activities. Additional greenhouse gas (GHG) emissions during operations would be minimal because routine O&M activities would continue as under current conditions. However, project construction in a given year is likely to include at least one component that would individually exceed the Sacramento Metropolitan Air Quality Management District (SMAQMD) threshold, or two components that, when combined, exceed the threshold. This would be a significant impact.</p>	Potentially significant	<p>Mitigation Measure 3.4-1a: Implement FRAQMD Construction Phase Mitigation Measures. (Refer to “3.4 Air Quality” for full measure)</p> <p>Mitigation Measure 3.4-1b: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions. (Refer to “3.4 Air Quality” for full measure)</p> <p>Mitigation Measure 3.9-1: Acquire Carbon Offset Credits that are Demonstrably Real, Permanent, Additional, Quantifiable, Verifiable, and Enforceable for Emissions that Exceed the SMAQMD Threshold.</p> <p>TRLIA will acquire carbon offset credits equal to construction-related GHG emissions that exceed the annual SMAQMD significance threshold of 1,100 MT of CO₂e, based on actual construction emissions calculated after project construction is complete. Carbon offset credits will comply with CARB’s Cap-and-Trade program and will be purchased from an accredited carbon credit market. Offset credits must be registered with, and retired by an Offset Project Registry, as defined in 17 CCR Section 95802(a), that is approved by CARB, such as, but not limited to, Climate Action Reserve, American Carbon Registry, or Verra (formerly Verified Carbon Standard), that is recognized by the Climate Registry, a non-profit organization governed by U.S. states and Canadian provinces and territories. To demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 CCR Section 95802(a), TRLIA will document the protocol used to verify the credits and submit the documentation for approval to a CARB-accredited third-party verification entity. If the verification entity finds that any credits purchased did not meet these criteria, TRLIA will purchase alternative credits and submit a follow-up report to the verification entity for concurrence. All carbon offsets purchased will be tracked through the Climate Registry.</p>	Less than significant
<p>3.9-2 Conflict with a Greenhouse Gas Emission Reduction Plan. The intent, purpose, and function of the project align with the</p>	Less than significant	No mitigation is required.	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>goals and recommendations of the 2009 Climate Adaptation Strategy and 2017 Scoping Plan related to protecting against the detrimental effects of climate change (i.e., increased frequency and magnitude of flood events). Therefore, this impact would be less than significant.</p>			
<p>3.10 Hazards and Hazardous Materials</p>			
<p>3.10-1 Possible Accidental Spills of Hazardous Materials used during Construction Activities. Project construction activities would include use of hazardous materials, including fuels, oils, lubricants, solvents, and corrosives. Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction. However, an accidental spill of hazardous materials could occur during project construction. This impact would be potentially significant.</p>	<p>Potentially significant</p>	<p>3.10-1: Implement a Spill Prevention Control and Countermeasures Plan and Other Measures to Reduce the Potential for Environmental Contamination during Construction Activities.</p> <p>In addition to compliance with all applicable Federal, State, and local regulations, TRLIA will implement the measures described below to further reduce the risk of accidental spills and protect the environment.</p> <ul style="list-style-type: none"> ▪ Prepare and Implement a Spill Prevention Control and Countermeasures Plan (SPCCP). A written SPCCP will be prepared and implemented. The SPCCP and all material necessary for its implementation will be accessible onsite prior to initiation of project construction and throughout the construction period. The SPCCP will include a plan for the emergency cleanup of any spills of fuel or other material. Construction personnel will be provided the necessary information from the SPCCP to prevent or reduce the discharge of pollutants from construction activities to waters and to use the appropriate measures should a spill occur. In the event of a spill in aquatic habitat, work will stop, and the spill will be addressed immediately with equipment such as booms to contain and absorb the spilled material. CVRWQCB will be notified within 24 hours of an in-water spill. ▪ Dispose of All Construction-related Debris and Materials at an Approved Disposal Site. All debris, litter, unused materials, sediment, rubbish, vegetation, or other material removed from the construction areas that cannot reasonably be secured will be removed daily from the project work area and deposited at an appropriate disposal or storage site. ▪ Use Safer Alternative Products to Protect Waters. Every reasonable precaution will be exercised to protect waters from pollution with fuels, oils, and other harmful materials. Safer alternative products (such as biodegradable hydraulic fluids) will be used where feasible. ▪ Prevent Any Contaminated Construction By-products from Entering Flowing Waters; Collect and Transport Such By-products to an Authorized Disposal Area. Petroleum products, chemicals, fresh cement, and construction by-products containing, or water contaminated by, any such materials will not be allowed to enter flowing waters and will be collected and transported to an authorized upland disposal area. ▪ Prevent Hazardous Petroleum or Other Substances Hazardous to Aquatic Life from Contaminating the Soil or Entering Waters. Gas, oil, other petroleum products, or any other substances that could be hazardous to aquatic life and resulting from project-related activities, will be prevented from contaminating the soil and/or entering waters. ▪ Properly Maintain All Construction Vehicles and Equipment and Inspect Daily for Leaks; Remove and Repair Equipment/Vehicles with Leaks. Construction vehicles and equipment will be properly maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Vehicles and equipment will be checked daily for leaks. If leaks are found, the equipment will be removed from the site and will not be used until the leaks are repaired. ▪ Refuel and Service Equipment at Designated Refueling and Staging Areas. Equipment will be refueled and serviced at designated refueling and staging sites. All refueling, maintenance, and staging of equipment and 	<p>Less than significant</p>

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>vehicles will be conducted in a location where a spill will not drain directly toward aquatic habitat. Appropriate containment materials will be installed to collect any discharge, and adequate materials for spill cleanup will be maintained onsite throughout the construction period.</p> <ul style="list-style-type: none"> ▪ Store Heavy Equipment, Vehicles, and Supplies at Designated Staging Areas. All heavy equipment, vehicles, and supplies will be stored at the designated staging areas at the end of each work period. ▪ Install an Impermeable Membrane between the Ground and Any Hazardous Material in Construction Storage Areas. Storage areas for construction material that contains hazardous or potentially toxic materials will have an impermeable membrane between the ground and the hazardous material and will be bermed as necessary to prevent the discharge of pollutants to groundwater and runoff water. ▪ Use Water Trucks to Control Fugitive Dust during Construction. Water (e.g., trucks, portable pumps with hoses) will be used to control fugitive dust during temporary access road construction. 	
<p>3.10-2 Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste Within 0.25 Mile of an Existing or Proposed School. Hazardous materials, such as fuels, oils and lubricants, and cleaners commonly used in construction projects would be handled in compliance with applicable local, State, and Federal laws and regulations. With adherence to these regulations, there would be no potential for such materials to affect the Linda Elementary School. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
<p>3.10-3 Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan. TRLIA would comply with relevant Yuba County plans and policies regarding emergency response and evacuation. All public roadways would remain open during project construction and closure structures where levees cross Dantoni Road, Plumas-Arboga Road, and the Union Pacific Railroad tracks would only affect vehicle or train access in the event of a flood emergency. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
3.11 Hydrology and Water Quality			
<p>3.11-1 Impacts on Drainage Patterns, Stormwater Facilities, and Flood Flows. Implementing the proposed project would upgrade the RD 784 urban levee system and thereby reduce flood risk in areas protected by the system. Hydraulic modeling results demonstrate that increasing the level of flood protection provided by the RD 784 urban levees would not worsen risk to areas not protected by this levee system and would not expose people or structures to a significant risk of loss, injury, or death involving flooding. This impact would be beneficial.</p>	Beneficial	No mitigation is required.	Beneficial
<p>3.11-2 Alter drainage pattern in a manner that results in substantial erosion or siltation on- or offsite. Project-related improvements would not increase the volume or intensity of</p>	Less than significant	No mitigation is required.	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>stormwater runoff in a manner that would result in on- or off-site erosion or siltation. O&M activities would be essentially the same as under existing conditions. This impact would be less than significant.</p>			
<p>3.11-3 Violate Surface Water Quality Standards from Ground Disturbance and Accidental Discharge of Wastes during Construction. Project-related excavation and earthmoving activities would result in exposed soil subject to erosion during storm events and potential discharge to adjacent surface waters. Project construction also would involve heavy equipment that uses potentially harmful products and could involve storing and using toxic and other harmful substances required for equipment. The presence of these substances could accidentally result in their discharge to surface waters. This would be a potentially significant impact.</p>	Potentially significant	<p>Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion. (Refer to “3.8 Geology, Soils, and Paleontological Resources” for full measure)</p> <p>Mitigation Measure 3.10-1: Implement a Spill Prevention Control and Countermeasures Plan and Other Measures to Reduce the Potential for Environmental Contamination during Construction Activities. (Refer to “3.10 Hazards and Hazardous Materials” for full measure)</p>	Less than significant
<p>3.11-4 Violate Surface Water Quality Standards from Discharge of Water Encountered during Construction. Project construction in portions of the project site would occur in areas subject to high groundwater and may require pumping and discharge. Construction in other areas may require temporary diversions. Discharge of effluent derived from construction dewatering to adjacent lands or surface waters may be required. This impact would be potentially significant.</p>	Potentially significant	<p>Mitigation Measure 3.11-4: Obtain Coverage and Comply with Requirements of the General Order for Limited Threat Discharges to Surface Water.</p> <p>Construction and operations involving dewatering will be subject to CVRWQCB WDR R5-2016-0076-01 requirements for managing wastewater produced during dewatering activities. To obtain coverage under this General Order, which also serves as the NPDES Permit, TRLIA or its construction contractor will submit a complete Notice of Intent, determine the quality of the discharge (using tiers), and assign appropriate controls that will be implemented.</p> <p>TRLIA will obtain coverage under one or more of the following permit tiers, as applicable:</p> <ul style="list-style-type: none"> ▪ Tier 1: Clean or relatively pollutant-free wastewaters that pose little or no threat to water quality <ul style="list-style-type: none"> ○ Tier 1A: Discharges of less than 0.25 million gallons per day or less than 4 months in duration ○ Tier 1B: Discharges greater than or equal to 0.25 million gallons per day and greater than or equal to 4 months in duration ▪ Tier 2: Discharges that may contain toxic organic constituents, volatile organic compounds, petroleum fuel pollution constituents, pesticides, inorganic constituents, chlorine, and/or other chemical constituents that require treatment prior to discharge <p>TRLIA will submit a separate Notice of Intent under the General Order for applicable construction and/or operation activities.</p>	Less than significant
3.12 Land Use and Planning			
<p>3.12-1 Conflict with Relevant Plans, Policies, and Zoning. The proposed project would provide long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events. The project would not change the overall character of lands in the project area or result in land use inconsistencies with local and regional plans. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.13 Mineral Resources			
<p>3.13-1 Loss of Availability of Known Mineral Resources or Locally Important Mineral Resource Recovery. Constructing the Goldfields West Levee would infringe very slightly on a portion of the Goldfields from which aggregate has not been recently extracted, would not interfere with any current mining activities, and would not block access to other mineral resources in the Goldfields. Use of mineral resources to construct the proposed improvements would be an appropriate use of these resources. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
3.14 Noise			
<p>3.14-1 Substantial Increase in Ambient Noise Levels. Project-related construction would expose sensitive receptors to a noise level that exceeds Yuba County standards, and O&M activities also could exceed noise standards. Therefore, impacts from construction noise is considered significant, and impacts from O&M activity noise would be potentially significant.</p>	Significant	<p>Mitigation Measure 3.14-1a: Reduce Construction and Operations and Maintenance Noise Effects. TRLIA will require its construction contractor(s) to implement the following measures to minimize noise effects on sensitive receptors during project construction and O&M activities that would exceed Yuba County noise thresholds and are not exempt from such thresholds. Noise-reducing construction practices will be implemented to minimize noise effects to the maximum degree feasible during construction. Measures that will be used to limit noise will include, but not be limited to, the following:</p> <ul style="list-style-type: none"> ▪ Prohibit start-up of machines or equipment before 7 a.m. and after 7 p.m. Monday–Saturday and before 9 a.m. and past 6 p.m. on Sunday, except during 24-hour cutoff wall construction. ▪ Prohibit material and equipment deliveries before 7 a.m. and after 7 p.m., Monday–Saturday and before 9 a.m. and past 6 p.m. on Sunday, except during 24-hour cutoff wall construction. ▪ Restrict use of bells, whistles, alarms, and horns to safety-warning purposes. ▪ Locate fixed construction equipment (e.g., pumps and generators), construction staging and stockpiling areas, and construction vehicle routes as far as feasible from noise-sensitive receptors. ▪ Portable compressors, generators, pumps and other such devices will be covered with noise-insulating fabric, which is not to interfere with engine operations, and/or will employ other techniques to reduce noise. ▪ Ensure equipment complies with pertinent equipment U.S. Environmental Protection Agency noise standards and has sound-control devices no less effective than those provided on the original equipment. No equipment will have unmuffled exhaust. ▪ Minimize equipment idling times by either shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. ▪ Route construction-related truck traffic along roadways that will cause the least disturbance to residents. <p>Mitigation Measure 3.14-1b: Notify Nearby Residences of Construction Activities and Address Complaints. TRLIA will require its construction contractor(s) to implement the following measure related to notification and complaint coordination during project construction and O&M activities that would exceed Yuba County noise thresholds and are not exempt from such thresholds:</p> <ul style="list-style-type: none"> ▪ Prior to the start of construction activities or relevant O&M activities, provide written notification to residences within 300 feet of the construction areas. Notification will identify the type, duration, and frequency of construction activities, include anticipated dates and hours during which construction activities are 	Potentially significant and unavoidable

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>anticipated to occur, and provide recommendations to assist residents in reducing interior noise levels (e.g., closing windows and doors).</p> <ul style="list-style-type: none"> ▪ Designate a disturbance coordinator and conspicuously post this person's number around the project site and in construction notifications. The disturbance coordinator will be responsible for responding to any complaints about construction activities. The disturbance coordinator will receive all public complaints about construction disturbances and be responsible for determining the cause of the complaint and implementation of feasible measures to be taken to alleviate the problem. 	
<p>3.14-2 Excessive Groundborne Vibration. Project construction would cause temporary groundborne vibration on the project site but is not expected to exceed standards for continuous vibration sources at the nearest receptor structures. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
3.15 Population and Housing			
<p>3.15-1 Displacement of Substantial Numbers of People or Existing Housing. The proposed project would increase the level of flood protection for areas protected by the existing RD 784 urban levee system and would not worsen flooding in areas not protected by the RD 784 urban levee system. Therefore, the project would not displace substantial numbers of people or existing housing. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
3.16 Transportation			
<p>3.16-1 Temporary Increase in Vehicle Miles Traveled During Construction. During construction, the proposed project would temporarily increase vehicle trips for mobilization and demobilization of construction equipment, material deliveries, off-hauling of construction debris, and worker vehicle trips. These trips would be limited to construction activities and therefore would be temporary, and the temporary additional trips would not substantially increase traffic volumes. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
<p>3.16-2 Increased Emergency Response Times or Inadequate Emergency Access. Construction-related vehicle trips would slightly increase traffic on local roadways, but this temporary increase would not affect emergency access and response times. O&M activities would be minimal and are unlikely to affect emergency response or access. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant
<p>3.16-3 Increase Hazards Due to Geometric Design Features or Incompatible Uses. The WPIC West Levee Extension would include ramps over the levee to provide access for farm equipment at existing access locations. These ramps would be designed to</p>	Less than significant	No mitigation is required.	Less than significant

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<p>accommodate safe travel by farm equipment and would not include dangerous slopes or curves. This impact would be less than significant.</p>			
3.17 Tribal Cultural Resources			
<p>3.17-1 Substantial Adverse Change in the Significance of an Unidentified Tribal Cultural Resource. No Tribal Cultural Resources (TCRs) were identified in areas where new levee embankments would be constructed. Similarly, potential to encounter previously unidentified TCRs on the project site is low because most of the site is limited to existing levees and associated maintenance zones that were disturbed during previous TRLIA projects. However, if unidentified TCRs occur in areas subject to project-related ground disturbance, they could be destroyed or otherwise substantially altered by project implementation. This would be a potentially significant impact.</p>	Potentially significant	<p>Mitigation Measure 3.6-1a: Conduct Additional Cultural Resources Inventory. (Refer to “3.6 Cultural Resources” for full measure)</p> <p>Mitigation Measure 3.6-1b: Implement Construction-Related Inadvertent Discovery Plan and Conduct Cultural Resource Awareness and Sensitivity Training. (Refer to “3.6 Cultural Resources” for full measure)</p>	Less than significant
3.18 Utilities and Service Systems			
<p>3.18-1 Relocation of Existing Utility Infrastructure. Steps would be taken to minimize potential impacts to utilities, but some project components could inadvertently damage utility equipment and facilities and result in service interruptions. Construction personnel also could be harmed if they contact live electrical lines. This temporary impact would be potentially significant.</p>	Potentially Significant	<p>Mitigation Measure 3.18-1: Verify Utility Locations, Coordinate with Affected Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.</p> <p>TRLIA and its construction contractor will implement the following measures before and during construction to avoid and minimize potential damage to utilities service disruptions, and safety risks:</p> <ul style="list-style-type: none"> ▪ Coordinate with applicable utility and service providers to implement orderly utility relocation. ▪ Provide notification of any potential service interruptions to the appropriate agencies. ▪ Verify through field surveys and Underground Service Alert services the locations of buried utilities on the project site, including natural gas and petroleum pipelines. Any buried utility lines will be clearly marked in the area of construction (e.g., in the field) and on the construction specifications before any earth-moving activities occur. ▪ Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan will identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan will include worker education training in response to such situations. ▪ Stage utility relocations prior to and during construction to minimize service interruptions. 	Less than significant
<p>3.18-2 Generation of Solid Waste Potentially Exceeding Permitted Capacity of Local Landfills. Project construction would require minimal demolition and resulting solid waste disposal and very little, if any, export of unsuitable excavated material. Debris generated during project construction would be disposed of at permitted facilities that can easily accommodate the relatively small amount of solid waste that could be generated. This impact would be less than significant.</p>	Less than significant	No mitigation is required.	Less than significant

Chapter 1. Introduction

1.1 Project Overview

The Three Rivers Levee Improvement Authority (TRLIA) is proposing the 500-year Flood Protection Project (project or 500-year Project) in Yuba County to improve the Reclamation District (RD) 784 levee system to reduce flood risk, ensure the system is adaptable to climate change, and address differing flood protection levels (levee superiority issues) resulting from incremental construction and improvement of the levee system over time. After construction, the 500-year Project would protect against a flood that has an estimated 1-in-500 chance of occurring in a given year along any segment of the RD 784 urban levee system.

Proposed improvements would occur along a total of up to approximately 10 miles of five existing RD 784 levees, including:

- Four segments totaling approximately 2 miles of the Yuba River South Levee
- Two segments totaling approximately 1.2 miles of the Feather River East Levee
- Approximately 1 mile of the Bear River Setback Levee and Bear River North Levee
- The entire 5.9-mile-long Western Pacific Interceptor Canal (WPIC) West Levee
- The entire 300-foot-long Olivehurst Detention Basin (ODB) Ring Levee

Proposed improvements also include extending the WPIC West Levee by constructing approximately 1.8 miles of new levee to the north and east and constructing approximately 1 mile of new levee along the western edge of the Yuba Goldfields (Goldfields) by modifying an existing embankment.

Levee improvements would use conventional flood risk reduction methods to raise levee segments by up to 1.9 feet and construct cutoff walls, seepage berms, landside blankets, and/or augment existing relief well systems to address levee under-seepage issues at specific locations.

Project construction is estimated to be accomplished over a 1- to 4-year period in 2024-2027 and during up to an approximately 9-month period (April–December) of each construction year.

1.2 Purpose and Intended Uses of the EIR

The California Environmental Quality Act (CEQA) specifies that a public agency must prepare an environmental impact report (EIR) on any project that it proposes to carry out or approve that may result in a significant effect on the environment (California Public Resources Code [PRC], Section 21080[d]). Serving as the CEQA lead agency, TRLIA has prepared this project-level EIR in accordance with CEQA and the State CEQA Guidelines (California Code of Regulations

[CCR], Title 14, Division 6, Chapter 3, Section 15000 et seq.) to evaluate the potential environmental impacts associated with implementing the proposed project. An EIR is an informational document used to inform public agency decision makers and the public of the significant environmental impacts of a project, identify feasible ways to avoid or minimize the significant impacts, and evaluate a reasonable range of alternatives to the project that could feasibly attain most of the basic project objectives while substantially lessening or avoiding any of the significant environmental impacts (State CEQA Guidelines, Section 15121[a]).

CEQA requires that State, regional, and local government agencies consider the environmental impacts of projects over which they have discretionary authority before taking action on those projects. CEQA also requires that each public agency avoid or reduce to less-than-significant levels, wherever feasible, the significant environmental impacts of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts that cannot be feasibly reduced to less-than-significant levels, the adverse environmental effects may be considered “acceptable” if the specific economic, legal, social, technological, or other benefits, including region-wide or Statewide environmental benefits, of the project outweigh the unavoidable adverse environmental impacts. In this case, the project can be approved if the lead agency makes a written “Statement of Overriding Considerations” explaining the specific reasons to support its action.

1.3 Agency Roles and Responsibilities

According to the State CEQA Guidelines (Section 15064[f][1]), an EIR must be prepared whenever a project may result in a significant environmental impact. The State CEQA Guidelines (Section 15367) identify the lead agency as the public agency that is responsible for approving and implementing a project. As both the lead agency and the project proponent, TRLIA intends to use this EIR as a key document to fulfill CEQA requirements.

The EIR also can be used as an informational document by responsible and trustee agencies that may have permitting or approval authority over aspects of the project. A CEQA responsible agency is a State agency, board, or commission or any local or regional agency other than the lead agency that has a legal responsibility for reviewing, carrying out, approving, or permitting aspects of a project. Responsible agencies must actively participate in the lead agency’s CEQA process and review its CEQA document. This EIR will be used by responsible agencies as a substantial basis in deciding whether to approve or permit project elements over which they have authority. A CEQA trustee agency is a State agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California.

Federal agencies are not responsible agencies under CEQA. However, Federal agencies may be required to comply with the National Environmental Policy Act and/or issue Federal approvals in making determinations, and they may use the CEQA document as a basis for their analyses and decisions, if needed.

1.3.1 State Lead Agency

TRLIA is responsible for providing documentation and implementing steps necessary to satisfy CEQA requirements for the proposed project. As the lead agency, TRLIA has prepared this Draft EIR, will be responsible for preparation of the Final EIR, and is responsible for ensuring that the EIR is available for review by the public and interested agencies and parties. TRLIA also will be responsible for EIR certification, project approval, mitigation implementation and monitoring, and project construction.

1.3.2 State Responsible and Trustee Agencies

The following responsible and trustee agencies may have jurisdiction over some aspects of the proposed project:

- California Department of Fish and Wildlife (DFW)
- California State Lands Commission
- Central Valley Flood Protection Board (CVFPB)
- Central Valley Regional Water Quality Control Board (CVRWQCB)
- Feather River Air Quality Management District (FRAQMD)
- Native American Heritage Commission (NAHC)
- State Office of Historic Preservation
- Yuba County

1.3.3 Federal Agencies with Permitting/Approval Authority

The following Federal agencies are anticipated to have permit or approval authority over some aspects of the proposed project:

- U.S. Army Corps of Engineers (USACE)
- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)

1.4 EIR Scoping, Preparation, and Review Process

On July 9, 2021, TRLIA issued a notice of preparation (NOP) for this EIR. The NOP concluded that the project may have significant impacts on the environment, and informed agencies and the general public that an EIR was being prepared. The NOP invited comments on the scope and content of the EIR and participation at a public scoping meeting. The NOP was electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research and was sent electronically to Federal, State, and local agencies and Native American Tribes. It was also posted on TRLIA's Web site and the CEQAnet Web portal. The NOP was distributed in accordance with the State CEQA Guidelines (Section 15082[c]).

Notice of the public scoping period (July 9 – August 9, 2021) and public scoping meeting (July 20, 2021) was published in the Appeal-Democrat on July 9, 2021. A scoping notice also was mailed to owners of property within the project footprint or a residence in an adjacent area. TRLIA conducted a public scoping meeting to solicit input from the community and public agencies to be considered in the selection and design of project alternatives and on the scope and content of the EIR.

After issuing the July 9, 2021 NOP, TRLIA added a component to the proposed project. Although a proposed project at the scoping stage is typically not well defined and frequently changes during and even after the scoping period, TRLIA took the extra step to issue a revised NOP on August 2, 2021 that incorporated the new project component. The revised NOP was electronically filed with the State Clearinghouse; sent electronically to Federal, State, and local agencies and Native American Tribes; and posted on TRLIA's Web site and the CEQAnet Web portal. The revised NOP extended the original public scoping period to September 1, 2021 (cumulative 55-day scoping period), which provided a full 30-day scoping period from the August 2, 2021 release date of the revised NOP. There were no changes to probable environmental impacts presented in the original July 9, 2021 NOP; the only changes in the revised NOP were the extended public scoping period and the revised project description adding the new project component. A scoping notice was mailed to landowners in or adjacent to the new portion of the project area, and notice of the new project component and extension of the scoping period was published in the Appeal-Democrat on August 3, 2021. The July 20, 2021 public scoping meeting, attended by 10 individuals, addressed all potential project components, including the new component, and an additional scoping meeting was not held.

Appendix A, “Notices of Preparation and Scoping Comments,” of this Draft EIR contains the original NOP, revised NOP, and comments that were received during the entire (original and extended) scoping period.

A notice of completion for this Draft EIR has been filed with the State Clearinghouse, in accordance with the State CEQA Guidelines (Section 15085), and a notice of availability of this Draft EIR has been posted in accordance with State CEQA Guidelines (Section 15087). The public review period for providing comments on this Draft EIR is from Wednesday, January 19, 2022 to close of business at 5:00 p.m. on Friday, **March 4, 2022**.

This document is available for public review, by appointment only, between 8:00 a.m. and 4:30 p.m. in TRLIA's office, located at 1114 Yuba Street, Suite 218, Marysville, California 95901. Please contact Ms. Leslie Wells at 530-749-7841 to make an appointment. This document is also available at <https://www.trlia.org>, by navigating to “Documents” from the home page and “Environmental Docs” from the list of relevant pages on the left side of the Documents page. The “Environmental Docs” page can also be accessed directly *via* this link: https://www.trlia.org/i_want_to/download_view/documents/environmental_docs.php. The 500-year Project in at the bottom of the list under “Environmental Docs.”

The Draft EIR also can be reviewed at the following location:

Yuba County Public Library, Marysville Branch
303 Second Street
Marysville, CA 95901
Telephone: 530-749-7380
Library hours (subject to change): by appointment, Tuesday–Friday 12:00–5:45 p.m.

If a reviewer is unable to access the Draft EIR electronically or visit the TRLIA office or Yuba County Library, a paper copy can be requested from Anne King at 916-382-7833 or aking@geiconsultants.com.

TRLIA will conduct a virtual public meeting on February 8, 2022 at 5:30 p.m. to solicit input from the public and public agencies on the Draft EIR. Access to the virtual meeting will be available by:

- Telephone at 213-338-8477
- Zoom at <https://zoom.us/join> (meeting ID 853 6585 1583, passcode 803554)
- Zoom via the following direct link:
<https://downeybrand.zoom.us/j/85365851583?pwd=UEo0eGtVcVVpZWp3VjFCMDhPTDk3QT09>.

This Draft SEIR is being distributed for a 45-day public review period that will end on Friday, March 4, 2022. Written comments must be received by the close of business (5 p.m.) on **March 4, 2022**. Written comments may be mailed, faxed, or e-mailed to:

Leslie Wells, Executive Assistant
Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, CA 95901
Telephone: 530-749-7841
Fax: 530-749-6990
E-mail: lwells@co.yuba.ca.us

Please indicate “500-year Project EIR” in the subject line. For comments by agencies and organizations, please include the name of a contact person for the agency or organization. If comments are provided *via* e-mail, please include the project title in the subject line, attach comments in Microsoft Word format, and include the commenter’s U.S. Postal Service mailing address. All comments received, including names and addresses of commenters, will become part of the official administrative record and may be available to the public.

1.5 Final EIR and EIR Certification

Comments regarding environmental issues received in response to the Draft EIR will be addressed in a response to comments document, which, together with the Draft EIR and any changes to the text made in response to comments, or initiated by staff, will constitute the Final EIR. The TRLIA Board of Directors will review the Final EIR and consider all staff recommendations and public testimony prior to certifying the EIR and deciding whether to approve or deny the proposed project at a public TRLIA Board of Directors meeting.

If TRLIA approves the project even though significant impacts identified by the EIR cannot be mitigated, TRLIA must state in writing the reasons for its actions. In this event, a Statement of Overriding Considerations must be included in the administrative record of the project approval and mentioned in the Notice of Determination (State CEQA Guidelines, Section 15093(c)).

1.6 Scope and Focus of the EIR

This Draft EIR does not address the following resources and associated impact mechanisms, because there is no potential that these resources would be significantly impacted by the proposed project:

- **Public Services**
 - **Substantial adverse physical impacts associated with new or physically altered governmental facilities.** The project would not require any new or increased government facilities to maintain public services, acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. The project would not have any or only minimal effects on existing public services.
- **Recreation**
 - **Increase in use of existing recreational facilities resulting in substantial deterioration.** No recreational facilities occur in the project area. Recreational uses in the project area are limited to walking, cycling, and other activities on the levee crown and along the levee toes. The proposed project would not increase use of these existing recreational activities. Recreational activities waterside of the levees are accessed by crossing over the levees; access to these areas would continue as under existing conditions after project construction is complete. Furthermore, there are numerous levees in the region that provide similar recreational activities that users can access during construction of the proposed project.
 - **Construction or expansion of recreational facilities resulting in an adverse physical effect.** The proposed project does not include recreational facilities and would not require construction or expansion of recreational facilities.

- **Wildfire**

- **Substantial impairment of an adopted emergency response or evacuation plan.**

There would be no effect on implementation of the Yuba County Emergency Operations Plan. Project construction would primarily occur in relatively remote agricultural areas, and temporary disruption of potential evacuation routes would be minimal, if any.

Therefore, the proposed project would not substantially impair implementation of an emergency response or evacuation plan. Potential temporary and short-term disruption of emergency access and evacuation routes by haul truck traffic during construction will be addressed in the EIR’s “Transportation” section.

- **Exacerbation of wildfire risks.** The project would not require installation or maintenance of infrastructure that may exacerbate fire risk or result in temporary or ongoing impacts to the environment.

- **Exposure to significant wildfire risks.** No portion of the project area is within a State or Federal responsibility area for fire protection or within a high fire hazard severity zone designated by the California Department of Forestry and Fire Protection. Standard wildfire risk reduction requirements for construction activities would be implemented during project construction, such as limiting activity on red flag days and prohibiting on-site burning. Therefore, project construction would not increase exposure of people or structures to significant wildfire risks or to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

This Draft EIR evaluates numerous environmental issue areas, and other CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts), as follows:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Housing
- Mineral Resources
- Noise
- Population and Housing
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

1.7 Document Organization and Terminology

This Draft EIR is organized as follows:

- “Executive Summary” summarizes the findings and conclusions of this Draft EIR.
- Chapter 1, “Introduction,” describes the purpose of this Draft EIR and associated agency roles and responsibilities, provides an overview of the CEQA and Draft EIR review

processes, outlines the scope and focus of this Draft EIR, and describes its organization and terminology.

- Chapter 2, “Project Description,” describes the project location, background, and context; discusses the project purpose and objectives; and describes the project components, including specific features, construction sequencing and methods, labor force, and operations and maintenance (O&M) activities.
- Chapter 3, “Environmental Setting, Impacts, and Mitigation Measures,” includes 17 environmental issue area sections pertinent to the project, each of which presents a discussion of the environmental setting; regulatory background; thresholds of significance, issues not discussed further in this EIR, and analysis methodology; environmental impact analysis (identifying beneficial impacts, no impacts, less-than-significant impacts, potentially significant impacts, and significant impacts); mitigation for potentially significant and significant impacts; and impacts remaining significant after implementing all feasible mitigation measures.
- Chapter 4, “Other CEQA-required Sections,” describes the project’s potential for growth-inducement, summarizes significant and unavoidable impacts and irreversible environmental changes, and describes impacts of implementing the prescribed mitigation measures.
- Chapter 5, “Cumulative Impacts,” describes the impacts of implementing the project in combination with impacts of related past, present, and reasonably foreseeable future projects that, when considered together, are considerable or which compound or increase other environmental impacts.
- Chapter 6, “Alternatives to the Proposed Project,” describes alternatives to the proposed project, summarizes alternatives that were considered but rejected from detailed analysis, analyzes and compares impacts of alternatives evaluated in detail (albeit at a lesser level of detail than the proposed project as specified in State CEQA Guidelines 15126.6), and identifies the “environmentally superior alternative.”
- Chapter 7, “Report Preparers and Reviewers,” names the individuals who have contributed to preparation or review of this Draft EIR.
- Chapter 8, “References,” lists the sources of information cited throughout this Draft EIR.
- “Appendices” provides background and technical information.

This Draft EIR uses the following terms and concepts:

- Construction footprint refers to the specific area in which construction activities would occur and generally relates to the area of direct project impact.
- Project site refers to the whole of the disjunct portions of the construction footprint and the intervening areas.
- Project area refers to the project site and areas adjacent to the project site.

- Project vicinity generally refers to an area that is broader than the project area but shares similar characteristics.
- An urban area is a developed area in which there are 10,000 residents or more (California Government Code Section 65007(j)).
- Flood risk is the likelihood and consequence of inundation. It is a function of (1) loading, which is the frequency and magnitude of flood discharge or stage; (2) limits to exposure to the loading due to flood defense measures; and (3) consequence. The consequence may be direct or indirect economic cost, loss of life, environmental impact, or other specified measure of flood effect.
- Level of (flood) protection is the return period of the highest water surface elevation for which an area will withstand flooding, or a levee or floodwall will protect against flooding. For example, 200-year flood protection is the level that protects against a flood that has a 1-in-200 chance of occurring in a given year.
- Design water surface elevation (DWSE) is the stage or water level used to design a levee or floodwall.
- Urban Levee Design Criteria are the levee and floodwall design criteria developed by the California Department of Water Resources (DWR) for providing the urban level of flood protection (i.e., 200-year level of flood protection) and for determining DWSE along leveed and unleveed streams.
- Freeboard is the height of the physical top of levee or floodwall above the DWSE and serves as a factor of safety for containing water without overtopping the levee or floodwall.
- Levee superiority is when one levee or levee reach can withstand a higher water surface elevation and provides a greater level of flood protection than another levee or reach providing flood protection to the same general area.
- Climate resilience is the capacity to adapt to climate change. In the context of this document, it refers to the capacity for a levee system to accommodate higher flood flows and continue to meet flood protection criteria if DWSE increase over time due to climate change.
- The North American Vertical Datum of 1988 (NAVD 88) is the vertical control datum established in 1991 to create a leveling network affixed to a single origin point on the North American continent. Engineering design elevations provided in this EIR are in NAVD 88.

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Chapter 2. Project Description

This chapter has four primary sections:

- Section 2.1, “Project Location,” describes the regional location of the project site and its general surroundings, including the project area and vicinity
- Section 2.2, “Project Background,” describes previous efforts by TRLIA that provided an urban-level of flood protection to the project area
- Section 2.3, “Project Purpose and Objectives,” describes the overall purpose and specific objectives of project implementation
- Section 2.4, “Description of Proposed Project,” describes the proposed project, including construction details and O&M activities

2.1 Project Location

The project is located in southwestern Yuba County, California (**Figure 2-1**). In the northern portion of the project area, activities would occur along the western edge of the Goldfields and along the Yuba River South Levee east of Simpson Lane. In the southern portion of the project area, activities would occur along the Feather River East Levee, Bear River North Levee and Bear River Setback Levee (between the Feather River East Levee and the WPIC West Levee), and along and north of the WPIC West Levee and ODB Ring Levee.

2.2 Project Background

2.2.1 Past TRLIA Levee Improvements

TRLIA is a joint powers authority composed of Yuba County and RD 784 that was formed in 2004 to finance and construct levee improvements for the RD 784 urban service area and other areas within Yuba County, as directed by the TRLIA Board. RD 784’s urban service area consists of approximately 30,000 acres in urban southwest Yuba County, including part or all of the communities of Linda, Olivehurst, Arboga, and Plumas Lake; it is bounded on the north by the Yuba River, on the west by the Feather River, on the south by the Bear River, and on the east by the WPIC. The RD 784 system includes approximately 32 miles of existing urban levees.

Yuba County is subject to seasonal flood threats from many rivers and creeks, including the Yuba, Feather, and Bear rivers and tributary drainages. Many local rivers have been confined by constructed levees. The RD 784 urban levee system is part of the State Plan of Flood Control, which comprises Federally and State-authorized flood protection facilities for which CVFPB or DWR has provided assurances of operation and maintenance to the Federal government

Figure 2-1. Project Location



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2021Nov29 RS

Source: Project site identified by HDR, Inc. and GEI Consultants, Inc. in 2021

TRLIA has implemented a program of repairs to the RD 784 urban levee system to provide 200-year flood protection to properties in the RD 784 urban service area. The TRLIA Program was originally planned to be completed in four phases. The last of these four phases, the Upper Yuba Levee Improvement Project, was completed in summer 2012. Since 2012, additional work has been completed to meet the requirements of the State's 2012 Urban Levee Design Criteria along the Feather River (south of Star Bend), Yuba River (by the 1986 break location), and WPIC. The northern terminus of the Yuba River South Levee was tied into the Goldfields with the assumption that the Goldfields serve as high ground. However, TRLIA determined that flood flows could enter the Goldfields through potential breaches in the tailings mound embankments at one or more critical erosion sites along the south bank of the Yuba River, resulting in a continued flood risk in the RD 784 urban service area. In 2020, to reduce this flood risk, TRLIA constructed a levee south of the Goldfields to prevent Yuba River flood flows during a 200-year flood event from flowing through the Goldfields and flanking the Yuba River South Levee.

Improvements to and extension of the RD 784 urban levee system completed by TRLIA since 2005 to provide 200-year flood protection to the RD 784 urban service area have included the following urban levees:

- Yuba River South Levee
- Bear River North Levee and Bear River Setback Levee
- Feather River East Levee and Feather River Setback Levee
- WPIC West Levee
- ODB Ring Levee
- Goldfields 200-year Levee

Although the completed improvements provide a minimum of 200-year flood protection, the actual performance of each levee in the system varies due to a number of factors. For example, the design of the Feather River and the lower Yuba River levees was based on the existing conditions at the time and did not account for the water surface reduction benefits of the Feather River Setback Levee. The hydrology has also been updated, and the updated estimate of the 200-year flood level is less than what was used to design past improvements. Based on the most recent hydraulic analyses, the RD 784 urban levee system currently has the following levels of flood protection performance:

- Yuba River South Levee and Goldfields 200-year Levee: 200- to 300-year flood protection
- Feather River East Levee and Feather River Setback Levee: 370-year flood protection
- Bear River North Levee and Bear River Setback Levee: 200- to 370-year flood protection
- WPIC West Levee and ODB Ring Levee: 200-year flood protection.

2.2.2 Future Atmospheric River Control Spillway at New Bullards Bar Dam

Yuba Water Agency (YWA) is proposing to construct and operate the Atmospheric River Control (ARC) spillway at New Bullards Bar Dam to increase operational flexibility for managing outflow and improve flood management in the Yuba and Feather River systems. Construction is anticipated to occur over approximately 4 years, beginning in 2024. The new spillway would allow for releases from the dam at a lower reservoir water elevation than can currently occur from the existing spillway. Releases from the new spillway would be made in anticipation of large storms to provide increased capacity in the reservoir during high-precipitation events. The new spillway may also be used during small- and medium-sized flood events to maintain the designated flood space in the reservoir, as well as during larger floods to evacuate a portion of the storage and manage downstream flood flows. Constructing and operating the new spillway would significantly reduce flood stage downstream at the city of Marysville and the Feather-Yuba River confluence and would increase the level of protection provided by the RD 784 urban levee system.

2.3 Project Purpose and Objectives

The State CEQA Guidelines (Section 15124[b]) require that the project description contain a clear statement of the project objectives, including the underlying purpose of the project. The statement of objectives is important under CEQA in helping the lead agency develop a range of reasonable alternatives for evaluation in the EIR. These objectives also define the underlying need for the project.

The overall project purpose is to ensure the RD 784 urban levee system is resilient to climate change by improving specific levee segments to provide a uniform, 500-year level of flood protection for all urban levees.

Project objectives are as follows:

- Improve segments of the RD 784 urban system that have the lowest levels of performance to address levee superiority concerns (differing flood protection levels) within the existing system and provide a uniform, 500-year level of flood protection
- Ensure the 200-year urban level of protection requirements are maintained in the future when considering potential flood flow increases from climate change
- Complete improvements in accordance with State and Federal flood risk reduction funding requirements and within State and Federal funds available for the project
- Complete improvements by December 31, 2027

2.4 Description of Proposed Project

TRLIA has reevaluated the RD 784 levee system against the 500-year DWSE to determine which levee segments would not meet this level of protection and identify appropriate improvements to increase protection of those areas to the 500-year level, ensure the levee system is adaptable to climate change, and address levee superiority issues. Based on the results of this evaluation, TRLIA proposes to implement improvements along segments totaling up to approximately 10 miles of the following existing levees:

- Yuba River South Levee (approximately 2 miles)
- Feather River East Levee (approximately 1.25 miles)
- Bear River Setback Levee and Bear River North Levee (approximately 1 mile)
- WPIC West Levee (approximately 5.9 miles)
- ODB Ring Levee (approximately 300 feet)

Improvements along these existing levees would include raising the levees by up to approximately 2 feet to provide 3 feet of freeboard above the DWSE, or sufficient height to contain wind-generated waves, and constructing cutoff walls, seepage berms, landside blankets, and/or relief well systems to address levee under-seepage issues in specific locations.

The proposed project also includes extending the WPIC West Levee by approximately 1.8 miles to the north and east by constructing a new levee embankment along the east side of State Route (SR) 70 and south side of Olivehurst to connect to SR 65. In addition, approximately 1 mile of existing embankment along the western edge of the Goldfields would be raised.

2.4.1 Construction Components and Methods

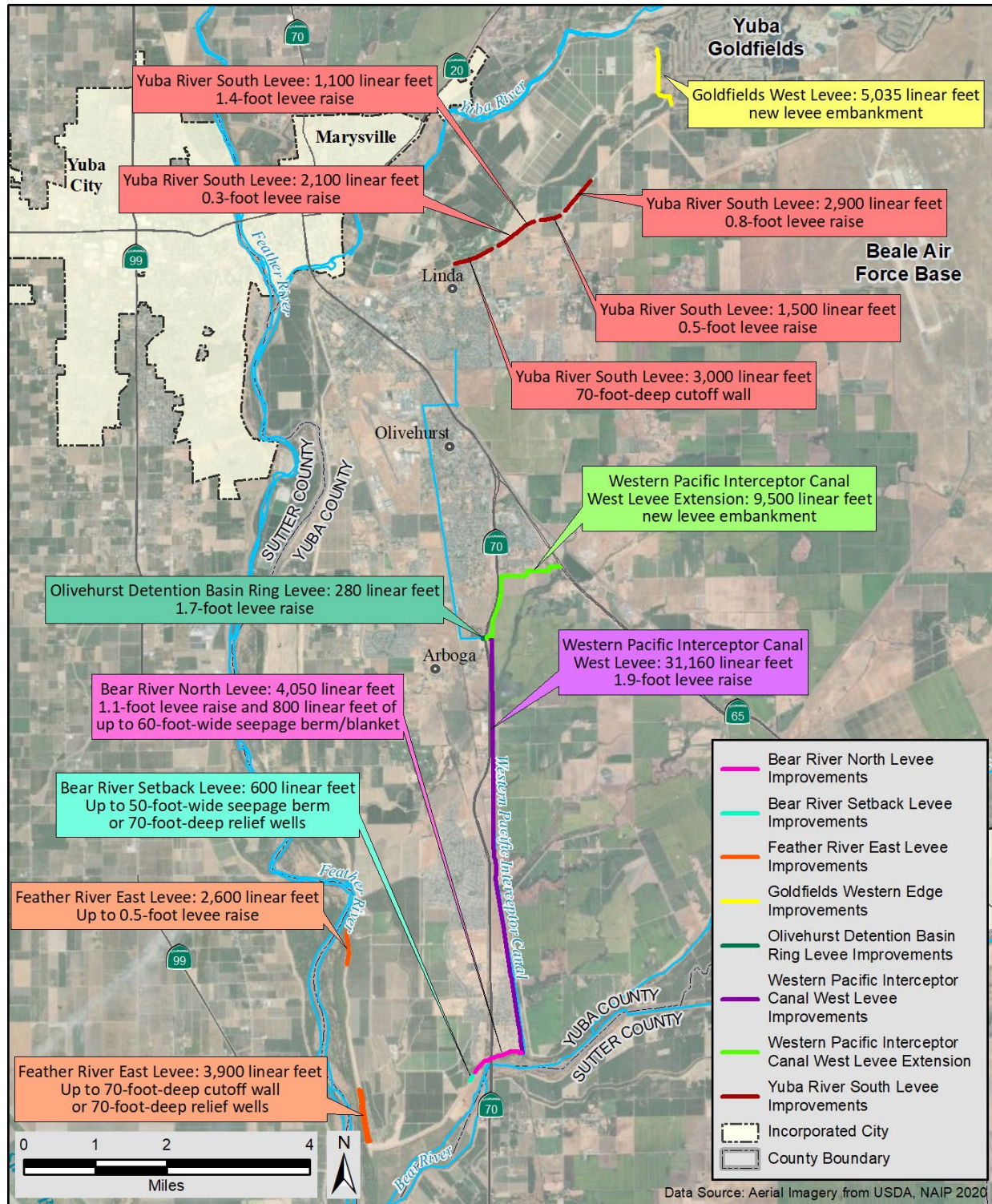
The potential project components are summarized in **Table 2-1**, and an overview is shown in **Figure 2-2**. **Figure 2-12** through **Figure 2-15**, at the end of this chapter, provide detailed views of the project components. Where two improvement options have been identified for a particular levee segment, both options are identified and evaluated in this EIR; an option will be selected for implementation during further project design.

Table 2-1. 500-year Project Components

Location	Levee Stations	Length (linear feet)	Remedial Measure	
			Option A	Option B
Yuba River South Levee	104+00-134+00	3,000	70-foot-deep soil-bentonite cutoff wall	
	139+00-160+00	2,100	0.3-foot levee raise (aggregate base)	
	160+00-171+00	1,100	1.4-foot levee raise (soil fill)	
	176+00-191+00	1,500	0.5-foot levee raise (aggregate base)	
	196+00-225+00	2,900	0.8-foot levee raise (soil fill)	
Feather River East Levee	182+80-208+80	2,600	Up to 0.5-foot levee raise (aggregate base)	
	50+00-89+00	3,900	78- to 86-foot-deep soil-bentonite cutoff wall	50- to 70-foot-deep relief wells
Bear River Setback Levee	96+20-102+20	600	50-foot-wide seepage berm (3-5 feet high)	50- to 70-foot-deep relief wells
Bear River North Levee	128+50-169+00	4,050	1.1-foot levee raise (soil fill)	
	138+00-143+00	500	50-foot-wide seepage berm (3-5 feet high)	
	166+32-168+82	300	60-foot-wide landside blanket	
WPIC West Levee	0+00-311+60	31,160	1.9-foot levee raise (soil fill) with closure structure	1.9-foot levee raise (parapet wall) with closure structure
	311+60-406+60	9,500	New levee embankment with drain	
ODB Ring Levee	0+00-2+80	280	1.7-foot levee raise (soil fill)	
Goldfields West Levee	2+14-52+04	4,900	New levee embankment	

Notes: ODB = Olivehurst Detention Basin, WPIC = Western Pacific Interceptor Canal
Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

Figure 2-2. Overview of Project Components



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Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

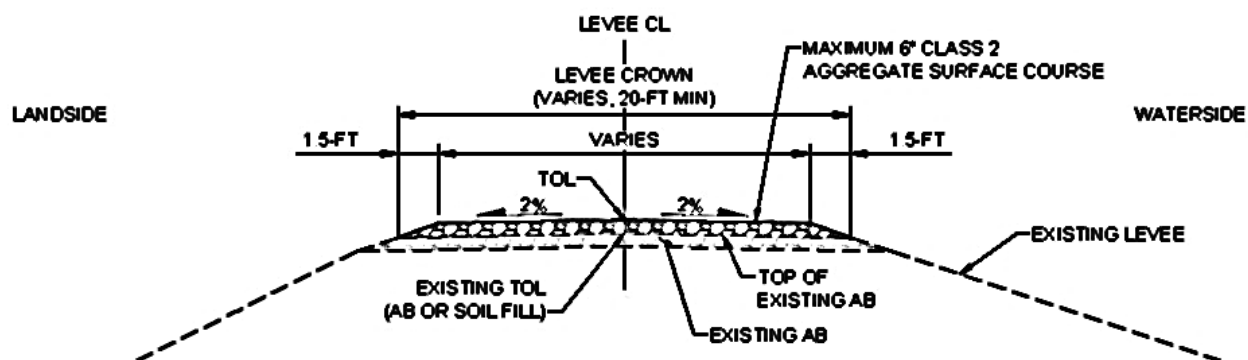
Levee Raising

Freeboard requirements on existing levee segments that do not provide adequate freeboard to meet project objectives would be met by raising the height of specified levee segments by a maximum of approximately 2 feet, depending on the location. Raises could be accomplished by three methods: 1) adding aggregate base to the levee embankment, 2) adding soil fill to the levee embankment, or 3) constructing a parapet wall on the levee crown. Each of these potential levee raising methods is described below, as well as closure structures that would be required.

Aggregate Base Levee Raises

To limit levee disturbance, aggregate base would be added to the levee crown on existing segments where the required levee raise is less than approximately 0.5 foot, the existing levee crown is a minimum of 20 feet wide, and no other levee embankment work is required in or near the area of the raise. A typical cross section of an aggregate base levee raise is shown in **Figure 2-3**. In areas where the existing levee crown is less than 20 feet wide, aggregate-filled geocells would be used to avoid expanding the levee footprint and minimize reduction in levee crown width. Before new aggregate base is placed, the existing aggregate surface may need to be prepared (scarified, moisture-conditioned, and compacted), but stripping would not be required.

Figure 2-3. Typical Aggregate Base Levee Raise Cross Section

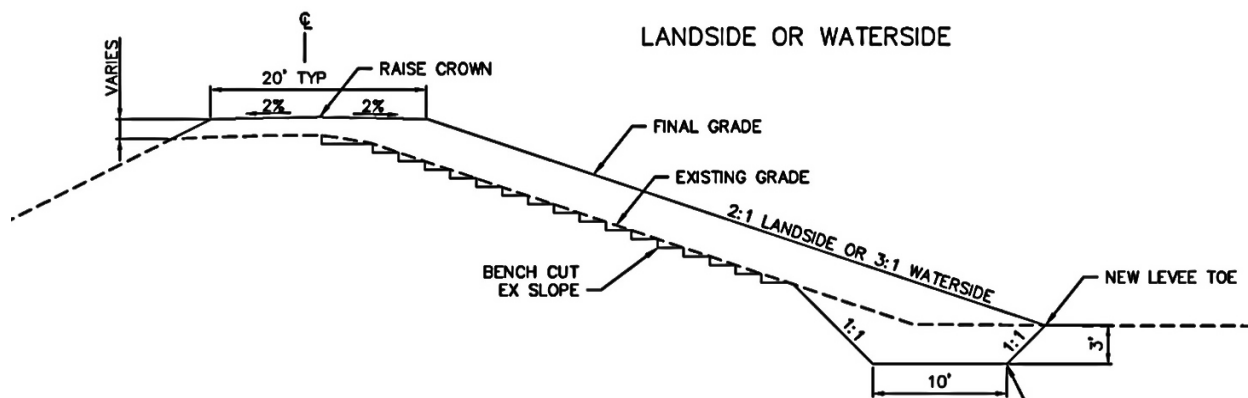


Source: Drawing provided by HDR, Inc. in 2021

Soil Fill Levee Raises

Soil fill levee raises would require widening the levee footprint, except in limited areas where the existing levee crown is wider than 20 feet and/or landside and waterside slopes are flatter than two horizontal (H) to one vertical (V) and 3H:1V, respectively. If a wider levee footprint is required, soil fill at given locations would be placed either completely on the landside slope or completely on the waterside slope to the extent feasible to limit levee embankment disturbance and allow for more efficient embankment construction methods. If possible, fill would be placed landside to limit hydraulic impacts. However existing constraints such as right-of-way (ROW) and encroachments may require waterside fill placement or, in limited cases, along both the landside and waterside. A typical cross section of a soil fill levee raise is shown in **Figure 2-4**.

Figure 2-4. Typical Soil Fill Levee Raise Cross Section



Source: Drawing provided by HDR, Inc. in 2021

Before adding soil fill to existing levees, aggregate surfacing along the existing levee crown and topsoil layers would be stripped. Where feasible, stripped materials would be stockpiled for reuse. Existing levee surfaces would be scarified to appropriate depths, then fill would be added to provide the required freeboard. Fill would be placed in lifts starting at the levee toe and proceeding up to the required levee crown height, then the slopes would be shaped to the required grade. Raised levees would have a 20-foot-wide crown, 2H:1V landside slope, and 3H:1V waterside slope. After the raised levee embankment has been constructed, the levee crown would be surfaced with aggregate base and disturbed areas would be hydroseeded.

Parapet Wall Levee Raises

If it is determined that there is insufficient area to accommodate a widened footprint required by raising the WPIC West Levee, additional levee height may be provided by constructing a concrete parapet wall. Parapet walls are vertical space-conserving barriers constructed along the waterside levee crown hinge. A photograph of a parapet wall on a levee crown is shown in **Figure 2-5**. Parapet walls generally do not require additional ROW because they have a small footprint. However, they are not a preferred method because they limit access to the waterside levee slope and increase the difficulty in performing maintenance inspections and may need to be removed to construct future levee repairs or improvements.

Before constructing a parapet wall, the levee crown and upper portion of the waterside slope would be excavated to allow for formwork and footing construction. Excavated materials would be stockpiled and reused to the maximum extent possible. After placing the formwork, concrete and rebar would be placed to the appropriate dimensions. Concrete walls would be allowed to cure for up to 28 days before restoring the levee crown and slope to pre-project conditions. After the parapet wall has been constructed, the levee crown would be resurfaced with aggregate base and disturbed areas would be hydroseeded.

Figure 2-5. Typical Parapet Wall



Source: Photograph taken by GEI Consultants, Inc. in 2021

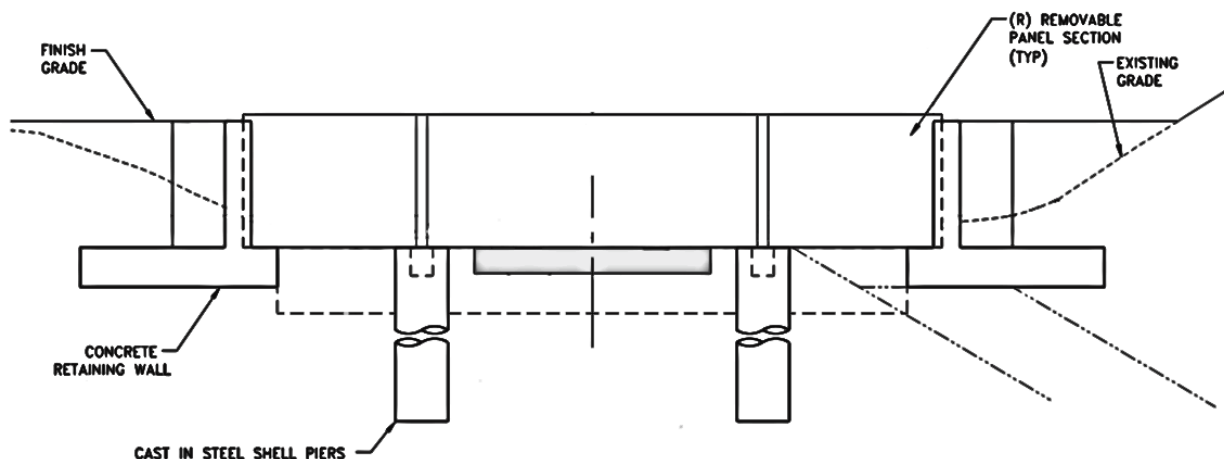
Constructing Closure Structures

Roadways, bridges, and railroad tracks intersect the levees in three locations and must be accounted for when raising levee segments. A closure structure would be installed at the road and railroad crossing locations shown in **Figures 2-12, 2-15a, and 2-15b** (at the end of this chapter). Levee intersections anticipated to require closure structures include:

- **Dantoni Road.** Two-lane asphalt-concrete road that intersects the Yuba River South Levee near Station 164+50.
- **Plumas-Arboga Road.** Two-lane asphalt-concrete road and bridge that intersect the WPIC West Levee near Station 190+00; western bridge abutment is in the levee waterside slope.
- **Union Pacific Railroad (UPRR).** Crosses the Bear River North Levee where it and the WPIC West Levee intersect. The track connects to a railroad bridge waterside of the Bear River North Levee.

Closure structures constructed at these three locations would be concrete walls with grooves that accommodate panels to form a watertight barrier. Panels would be installed during high-flow events (at a pre-defined water surface elevation) and removed after water levels have sufficiently subsided; installation and removal are anticipated to be completed by RD 784. The concrete walls would tie into the adjacent levee embankments and would be constructed a sufficient width apart to avoid limiting vehicular access at the Dantoni Road and Plumas-Arboga Road crossings and train access at the UPRR crossing. When the panels are in place, through access at the road and UPRR crossings would not be possible. A typical closure structure is shown in **Figure 2-6**.

Figure 2-6. Typical Closure Structure



Source: Drawing provided by HDR, Inc. in 2021

Before constructing closure structures, the levee crown and portions of the levee slopes would be excavated to allow for formwork and footing construction. Excavated materials would be stockpiled and reused to the maximum extent possible. After placing the formwork, concrete and rebar would be placed to the appropriate dimensions. Concrete walls would be allowed to cure for up to 28 days before restoring the levee crown and slope to pre-project conditions. After each closure structure has been constructed, the levee crown would be resurfaced and disturbed areas would be hydroseeded.

New Levee Embankment Construction

Along the western edge of the Goldfields, an existing mine tailing embankment would be modified using existing tailing materials in the Goldfields to provide an appropriate height and geometry for flood protection purposes. This embankment would be constructed with a 5H:1V landside slope, a 35-foot-wide crown at an elevation of 104.2 feet NAVD 88, and a 3H:1V waterside slope. The new Goldfields West Levee embankment would begin at the western end of the existing Goldfields 100-year embankment and extend approximately 5,000 feet north toward the Yuba River (**Figure 2-12**). Typical cross sections of the Goldfields West Levee are shown in **Figure 2-7**.

The WPIC West Levee would be extended by constructing a new levee embankment north along the east side of SR 70, then east along the south side of Olivehurst to SR 65 (**Figure 2-15c**). The extension would begin north of the existing ODB drain and tie into the existing SR 70 and SR 65 embankments. It would be constructed of imported soil fill, with 3H:1V landside and waterside slopes and a 20-foot-wide crown. Except for the tie-ins, the levee extension would be constructed outside of the existing California Department of Transportation (Caltrans) ROW and would avoid existing residential structures. Existing Pacific Gas and Electric Company (PG&E) transmission towers along the east side of SR 70 also would be avoided. Existing farm access roads and ditches would be rerouted. A portion of the existing drainage ditch at the west side of

SR 65 would be filled and a gravity pipe outfall with positive closure valves would be installed. A typical cross section of the WPIC West Levee extension is shown in **Figure 2-8**.

Before constructing levee embankments, existing topsoil layers would be stripped. Where feasible, stripped materials would be stockpiled for reuse. Temporary cut slopes would be 2H:1V, and excavated material would be stockpiled on-site for reuse. Topsoil would then be re-spread and disturbed areas would be hydroseeded.

Seepage Remediation

Along portions of existing specified levee segments where seepage is a concern, remediation would include cutoff walls, landside blankets or seepage berms, or relief wells.

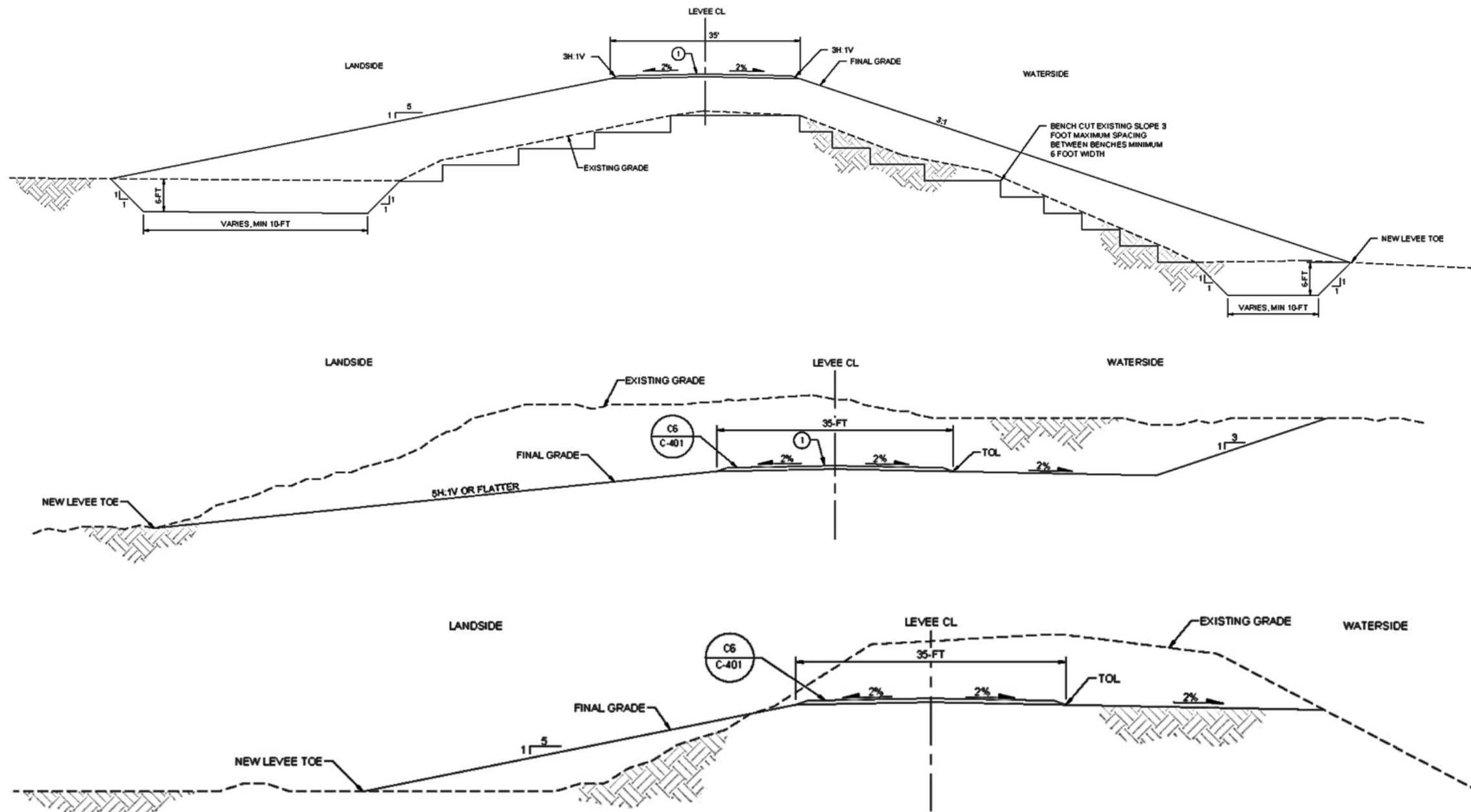
Cutoff Walls

Seepage cutoff walls are vertical walls approximately 3 feet wide and constructed of low hydraulic conductivity materials through the levee embankment and foundation to cut off potential through- and under-seepage. To be effective for under seepage, cutoff walls usually tie into an impervious sublayer. Cutoff walls typically require no additional permanent levee footprint, but the levee must be temporarily taken out of service and degraded to prevent hydraulic fracturing and provide a sufficiently wide working surface. A typical cutoff wall cross section is shown in **Figure 2-9**.

Approximately 3,000 linear feet of cutoff wall would be constructed through the Yuba River South levee beginning near Simpson Lane. A cutoff wall is proposed in this area to avoid encroachment on the adjacent residential areas and golf course from potential alternative seepage remediation measures. If selected for design, approximately 3,900 feet of cutoff wall also would be constructed through the Feather River East Levee, beginning just north of the RD 784 Pump Station No. 2, along the reach of levee formerly known as Site 7 Extension.

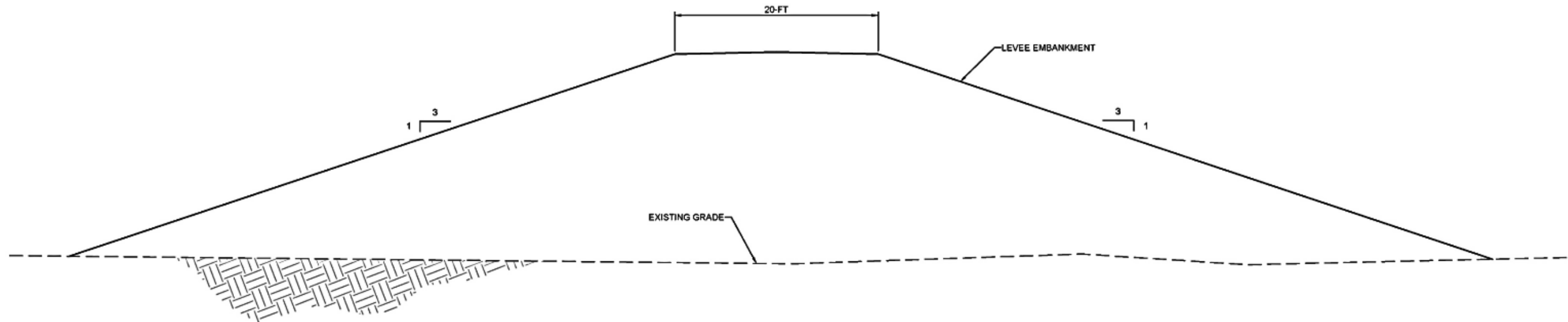
Before beginning cutoff wall construction, existing aggregate surfacing and topsoil layers would be stripped. Where feasible, stripped materials would be stockpiled for reuse. The levee crown would then be degraded by approximately one-third of its overall height. Levee degrade material would be side cast landside and waterside of the levee to establish the working surface. A 70-foot-deep soil-bentonite cutoff wall, as measured from the levee working platform, would be constructed through the Yuba River South Levee, while the cutoff wall through the Feather River East Levee is expected to extend up to approximately 85 feet deep. A 3-foot-wide trench would be excavated through the center of the levee and filled with bentonite-slurry to keep the trench sidewalls from caving in during excavation. Material excavated from the trench would be mixed, adjacent to the trench, with bentonite slurry and dry bentonite in appropriate proportions and then placed back in the excavated trench.

Figure 2-7. Typical Goldfields West Levee Cross Sections



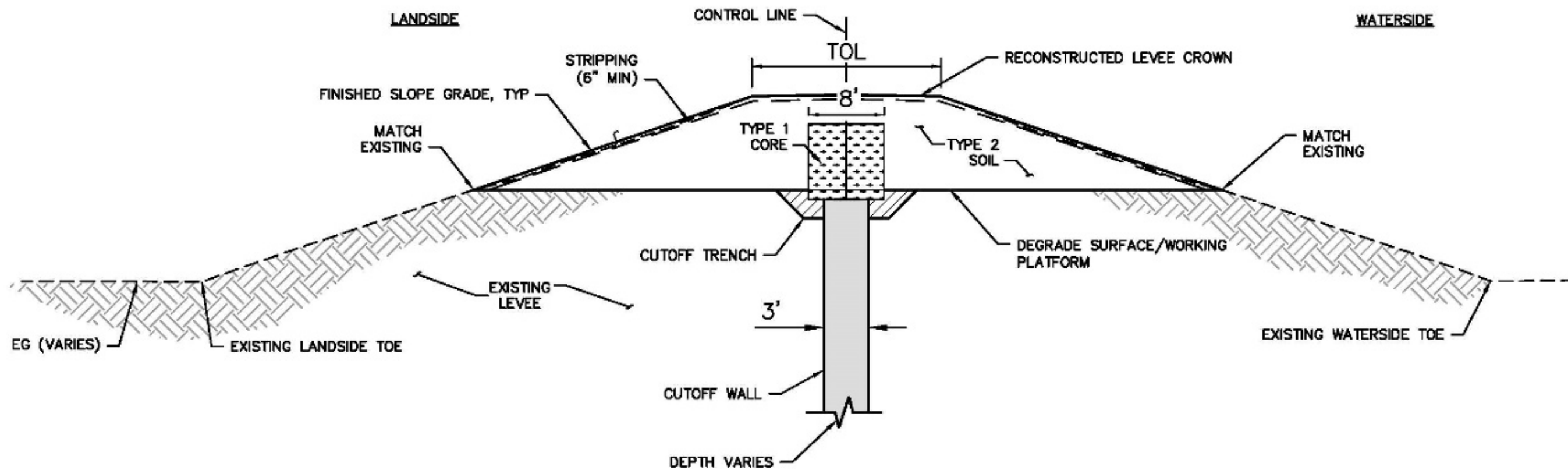
Source: Drawing provided by HDR, Inc. in 2021

Figure 2-8. Typical WPIC West Levee Extension Cross Section



Source: Drawing provided by HDR, Inc. in 2021

Figure 2-9. Typical Cutoff Wall Cross Section



Source: Drawing provided by HDR, Inc. in 2021

After cutoff wall settlement (typically 21 days) the levee embankment would be reconstructed to its original condition. At the Yuba River South Levee, the reconstructed embankment would include an 8-foot-wide clay core, and embankment outside of the clay core would be reconstructed using soil from project excavations. At the Feather River East Levee, the material excavated from the levee is expected to be clayey and meet the specification for Levee Embankment Fill Soil Type 1, so a separate core zone is not necessary. Aggregate base would then be placed along the levee crown and on levee access ramps, and disturbed areas would be hydroseeded.

Relief Wells

Relief wells are designed, based on the foundation soils in which they are installed, to relieve excessive pore pressures during high-flow events and provide a controlled discharge point for under-seepage. The existing relief well and drainage system along the Feather River East Levee is shown in **Figure 2-10**. If selected for design, up to four relief wells would be installed at 150-foot-intervals along the landside levee toe of the Bear River Setback Levee, extending the existing relief well system by approximately 600 feet, and up to 21 relief wells would be installed at varying intervals along the landside levee toe of the Feather River East Levee at two reaches within the Site 7 Extension area. These relief wells would be interspersed at the half points between existing relief wells. At both locations, the infrastructure needed to operate and maintain the relief wells (a drainage collection ditch, pump station, and toe service road) already exists. If the Feather River East Levee cutoff wall option is selected for design, the existing relief well system may be left in place to provide redundant seepage remediation for the remaining life of the wells. Alternatively, the existing system may be demolished and removed; debris would be disposed of at the nearest permitted facilities.

Before beginning relief well construction, existing topsoil layers would be stripped. Where feasible, stripped materials would be stockpiled for reuse. Truck-mounted drills rigs would be used to drill pilot holes at relief well locations. Soil samples would be collected from pilot holes and sent to a lab for testing. Pilot holes would be grouted in accordance with local, State, and Federal requirements. Test results from soil samples would be used to finalize designs.

Relief wells would be installed through pervious layers to approximate depths between 50 and 70 feet. Relief wells are typically 16 inches in diameter and include 6- to 8-inch-diameter casings. The area between the drilled hole and casing is filled with a gravel pack suitable for the foundation soils. Precast concrete manholes with traffic-rated lids would be installed at the tops of the relief wells. Discharge pipes (precast concrete) would be installed from each relief well to an existing concrete-lined relief well ditch that would convey discharge to a location away from the levee. An existing gravel access road along the relief well system allows for operation, maintenance, and inspections.

Figure 2-10. Relief Well and Drainage System along Feather River East Levee

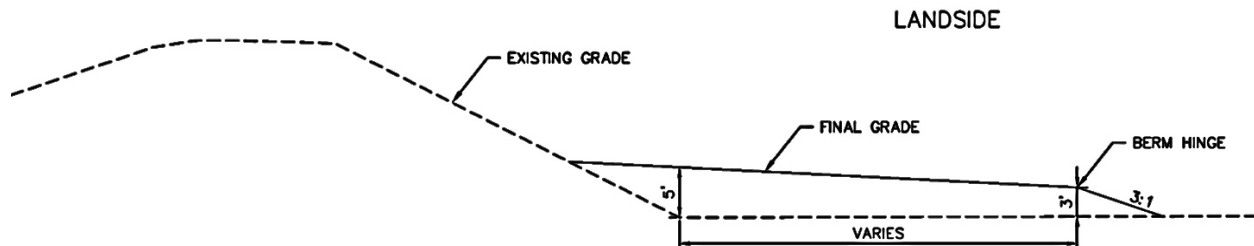


Source: Photograph taken by GEI Consultants, Inc. in 2021

Seepage Berms and Landside Blanket

Seepage berms and blankets are wide embankment structures that extend outward from the landside levee toe to extend the under-seepage path and provide additional resisting forces against high-seepage gradients. They extend the under-seepage path and control exit gradients near the landside toe by providing additional confining pressure. A berm is fill with a defined shape that is added on top of the existing landside grade; a blanket is fill added to a low landside area to bring it up to existing adjacent grade or slightly higher. A typical seepage berm cross section is shown in **Figure 2-11**.

Figure 2-11. Typical Landside Seepage Berm



Source: Drawing provided by HDR, Inc. in 2021

A seepage berm would be constructed along the Bear River North Levee, west of SR 70, and a seepage blanket would be constructed along the Bear River North Levee, immediately west of the UPRR. A seepage berm also may be constructed along the Bear River Setback Levee, if selected for design.

Before beginning seepage berm or blanket construction, areas to receive fill would be stripped to remove the topsoil layer. Where feasible, stripped materials would be stockpiled for reuse. Fill would then be placed from the levee landside toe through the full width of the seepage berm or blanket. The seepage berms would be 50 feet wide and 5 feet high at the levee toe, tapering to 3 feet high at the outer edge. The seepage blanket would be 60 feet wide and a maximum of approximately 5 feet high. Stripped topsoil would be re-placed on top of the constructed seepage berm and blanket, and disturbed areas would be hydroseeded.

2.4.2 Construction Schedule and Phases

Due to uncertainties regarding the timing of available funding, the exact construction schedule is not known at this time. However, work is anticipated to be completed in the 2024 to 2027 timeframe. The project is anticipated to be constructed over a 1- to 3-year period and during up to an approximately 9-month period (April–December) of each construction year. The impact analysis presented in Chapter 3, “Environmental Setting, Impacts, and Mitigation Measures,” assumes a worst-case scenario for relevant resources, in which all project components are constructed simultaneously within 1 calendar year.

Work, including equipment operation, is anticipated to occur up to 14 hours per day, 6 days a week (Monday–Saturday), and between the hours of 6 a.m. and 8 p.m. However, equipment operation within 500 feet of occupied residences would be limited to 7 a.m. to 7 p.m. Equipment maintenance could occur on Sunday. If deemed necessary to complete construction before the beginning of the flood season, Feather River East Levee cutoff wall construction activities may occur on up to a 24-hour basis. If nighttime construction is necessary, all nighttime construction lighting would be shielded and directed away from residences and riparian habitat.

2.4.3 Material Needs, Sources, Transport, and Disposal

Fill material for the levee and clay core would be obtained from either an off-site borrow source(s) or from excess material obtained from project excavations. The construction contractor would be required to obtain any off-site borrow materials. It is assumed that off-site material would be imported to the project site from in or near the Yuba City, Olivehurst, and Linda areas, within approximately 15 to 30 miles of the relevant work area. If borrow material is obtained from a site that is not currently permitted, the contractor would be responsible for obtaining all necessary permits before the project-related borrow material is removed. Other materials, such as aggregate base, concrete, culverts, and gates, would be obtained from off-site commercial sources within approximately 15 to 30 miles of the relevant work area.

Before primary construction activities begin, up to approximately 160 acres (**Table 2-2**) along the levees and other work areas would be cleared and grubbed to remove debris, rubble, trash, and other deleterious items; excess materials would be removed from the project site and taken to the nearest appropriate commercial waste or recycling facilities, assumed to be the Recology Ostrom Road Landfill in Wheatland, approximately 10 to 15 miles from the work areas.

Table 2-2. Estimated Extent of Project-related Ground Disturbance

Project Component	Ground Disturbance Area
Goldfields West Levee	15 acres
Yuba River South Levee	16 acres
Feather River East Levee	13 acres
Bear River North Levee	11 acres
Bear River Setback Levee	1 acre
WPIC West Levee and ODB Ring Levee	72 acres
WPIC West Levee Extension	32 acres
Total	160 acres

Notes: ODB = Olivehurst Detention Basin, WPIC = Western Pacific Interceptor Canal
Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

Table 2-3 lists the maximum estimated material import and export quantities for all project components. For project components that have two design options, the option with greater material import/exports needs is included.

Table 2-3. Estimated Material Quantities for Each Project Component

Material Type	Material Quantity					
	Goldfields	Yuba River	Feather River	Bear River	WPIC and ODB (existing)	WPIC Extension
Levee embankment excavation	95,000 cy	55,000 cy	31,000 cy	7,000 cy	55,000 cy	40,000 cy
Cutoff wall	--	23,000 cy	37,000 cy	--	--	--
Levee embankment fill	215,000 cy	63,500 cy	31,000 cy	39,000 cy	375,000 cy	475,000 cy
Seepage berm/blanket fill	--	--	--	14,500 cy	--	--
Class 2 aggregate base	6,000 tons	8,000 tons	3,000 tons	3,000 tons	21,000 tons	7,500 tons
Excess and unsuitable material for export	25,000 cy	7,000 cy	--	1,000 cy	8,000 cy	14,000 cy

Notes: cy = cubic yards, ODB = Olivehurst Detention Basin, WPIC = Western Pacific Interceptor Canal
Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

Table 2-4 lists the estimated number of truck trips required to transport materials to and from the different portions of the project site. For project components that have two design options, the option with greater material import/exports needs is included.

Table 2-4. Estimated Number of Truck Trips Required for Material Transport

Project Component	Approximate Total Number of Truck Trips	Construction Duration (days)	Number of Trips per Day
Goldfields West Levee	10,325	143	72
Yuba River South Levee	2,733	149	18
Feather River East Levee	2,065	112	18
Bear River North Levee	4,410	52	85
Bear River Setback Levee	830	10	83
WPIC West Levee and ODB Ring Levee	31,315	169	185
WPIC West Levee Extension	37,285	163	229

Notes: ODB = Olivehurst Detention Basin, WPIC = Western Pacific Interceptor Canal
Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

2.4.4 Site Access, Staging, and Project-related Transportation

Construction easements landside and waterside of the levees would be used by the contractor for access, hauling, spoiling of material, storage, fueling, and other construction-related activities. Staging areas would be established adjacent to the work areas to allow for efficient use and distribution of materials and equipment; staging areas would be located within or immediately adjacent to the project site or obtained, separately, by the contractor.

Material deliveries would be made to the project site throughout the construction duration. Local access to the project site for personnel, equipment, and material delivery would primarily be provided by the following routes:

- Goldfields West Levee: Simpson Dantoni Road and Dantoni Road
- Yuba River South Levee: SR 70, North Beal Road, Simpson Lane, Dantoni Road, Bryden Road
- Feather River East Levee: SR 70, Feather River Boulevard, and toe access road and/or levee patrol road from Road 512 and from Star Bend Boat Ramp
- Bear River North Levee and Setback Levee: SR 70, Feather River Boulevard, Road 512
- WPIC West Levee: SR 70, Feather River Boulevard, Algodon Road, Plumas-Arboga Road
- WPIC West Levee extension: SR 65, SR 70, McGowan Parkway, Dan Avenue, Rose Avenue, Mage Avenue
- ODB Ring Levee: SR 70

2.4.5 Construction Equipment and Personnel

Table 2-5 summarizes the types of equipment anticipated to be used during each construction phase and the estimated duration of each phase, for all project components combined. The estimated duration for each construction phase provides a range of the total number of days on which construction activities could occur, depending on the number of project components that

Table 2-5. Summary of Anticipated Equipment Types and Estimated Construction Phase Durations

Construction Phase	Equipment Type	Construction Duration
Clearing and grubbing	5-cy front end loader	15-45 days
	water truck	
	end dump truck	
	pick-up truck	
Stripping	scraper	30-80 days
	D6 dozer	
	D5 dozer	
	5-cy front end loader	
	end dump truck	
	water truck	
Levee degrade for cutoff wall	pick-up truck	25-40 days
	3.5-cy excavator	
	D6 dozer	
	end dump truck	
	water truck	
Cutoff wall construction	pick-up truck	60-105 days
	haul truck	
	3.5-cy long-reach excavator	
	D6 dozer	
	extended boom pallet loader	
	300-kilowatt generator	
	slurry pump	
Levee construction/reconstruction and seepage remediation	pick-up truck	130-475 days
	haul truck	
	Scrapers	
	motor grader	
	D6 dozer	
	5-cy front end loader	
	Tractors	
	sheepsfoot compactor	
	vibratory roller	
	end dump truck	
bottom dump truck		
Hydroseeding, demobilization, and cleanup	water truck	20-100 days
	pick-up truck	
	haul truck	
	hydroseeding truck	

Notes: cy = cubic yard

Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

are constructed concurrently; the maximum durations assume there is no overlap in construction of the project components. However, it is likely at least some components would be constructed concurrently and that some construction phases would partially overlap, thereby greatly reducing the total number of days on which project activities would occur but also increasing daily construction-related air quality and greenhouse gas (GHG) emissions and traffic. Equipment use information for each project component, including the number of pieces of equipment and construction phase duration, is provided in **Appendix B, “Anticipated Construction Equipment Use for Each Project Component.”**

2.4.6 Land Acquisition/Easements

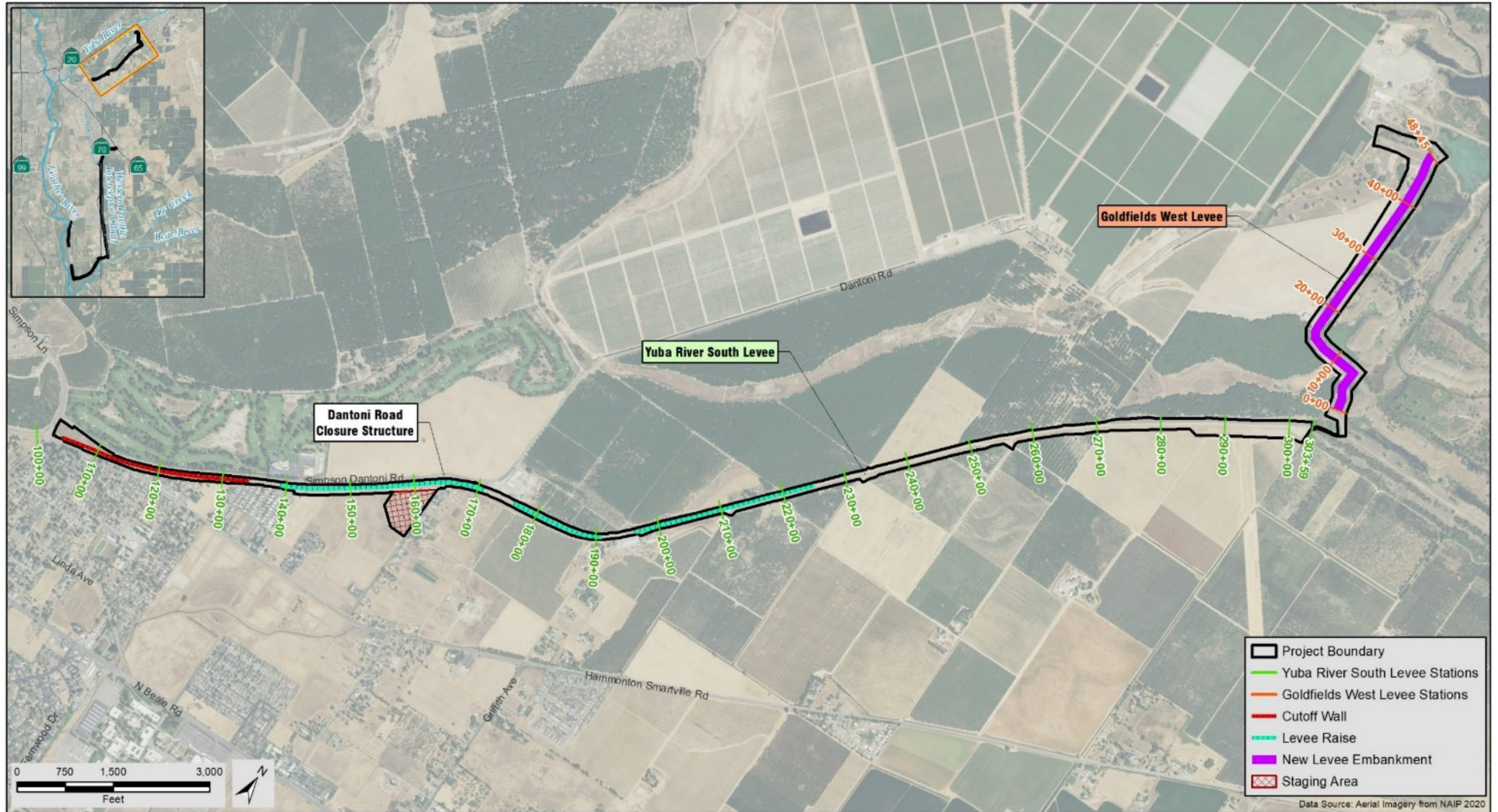
Acquisition of easements and/or land in fee title would be required within the Goldfields West Levee and WPIC West Levee Extension areas. Acquisition also may be necessary to account for expansion of existing levee footprints and associated 50-foot maintenance areas and in areas that are not proposed for improvement, but where the existing rights do not currently provide 50-foot maintenance corridors at the landside and waterside levee toes. Therefore, TRLIA proposes to acquire the access necessary to construct the project components and provide the required maintenance corridor; such access and/or maintenance assurances may be provided through a negative covenant, easement, or fee title.

2.4.7 Operations and Maintenance

Regular O&M activities for existing levees and associated structures would continue as under current conditions and would be expanded to include new levee segments and associated new structures. O&M would include activities such as inspections and patrols, vegetation management, burrowing animal control and abatement, slope maintenance, erosion protection, and levee patrol road and ramp maintenance along levee embankments. All of these O&M activities are currently provided on the existing levees so no new activities are proposed.

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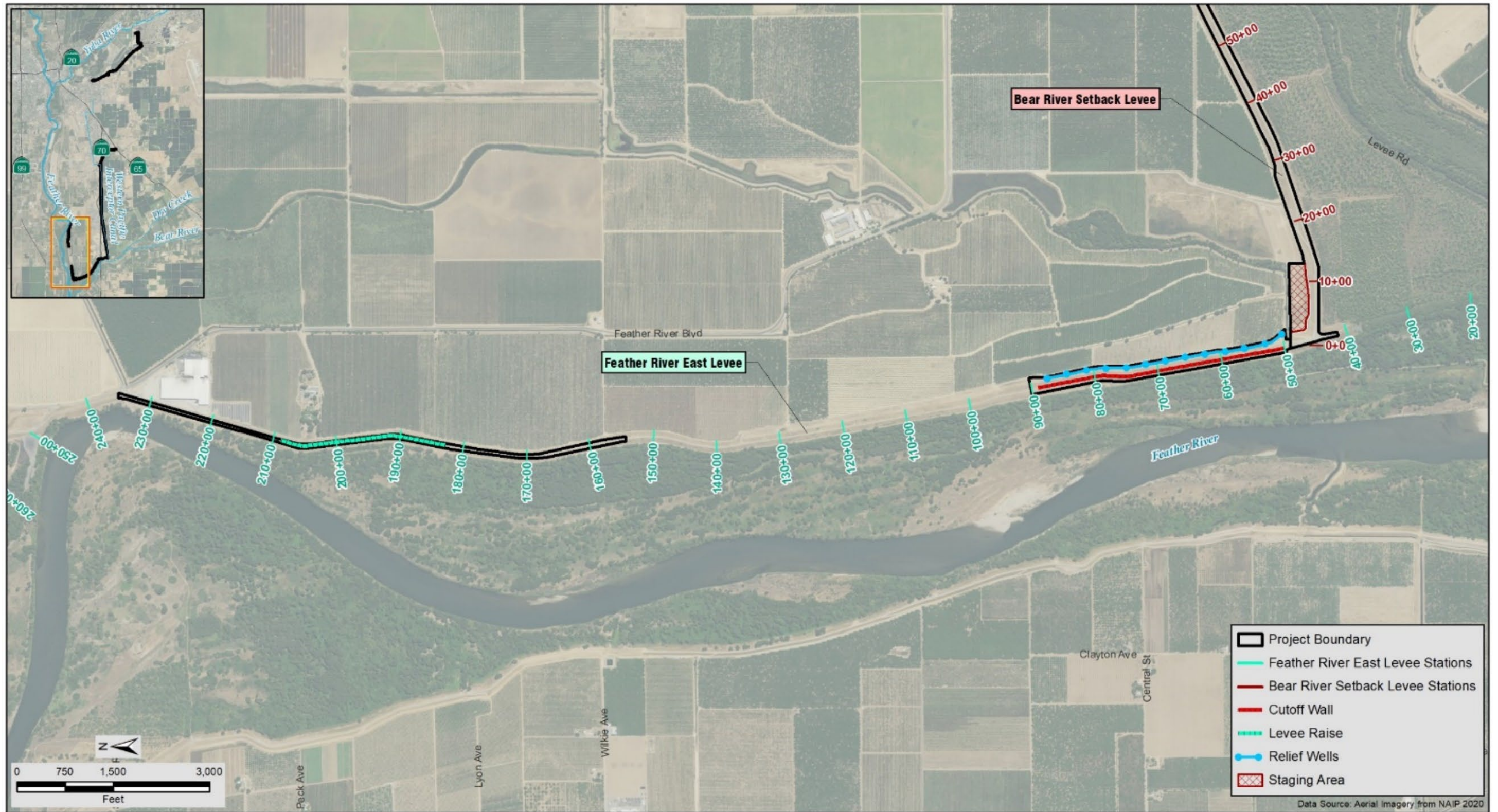
Figure 2-12. Goldfields West Levee and Yuba River South Levee Project Components



Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

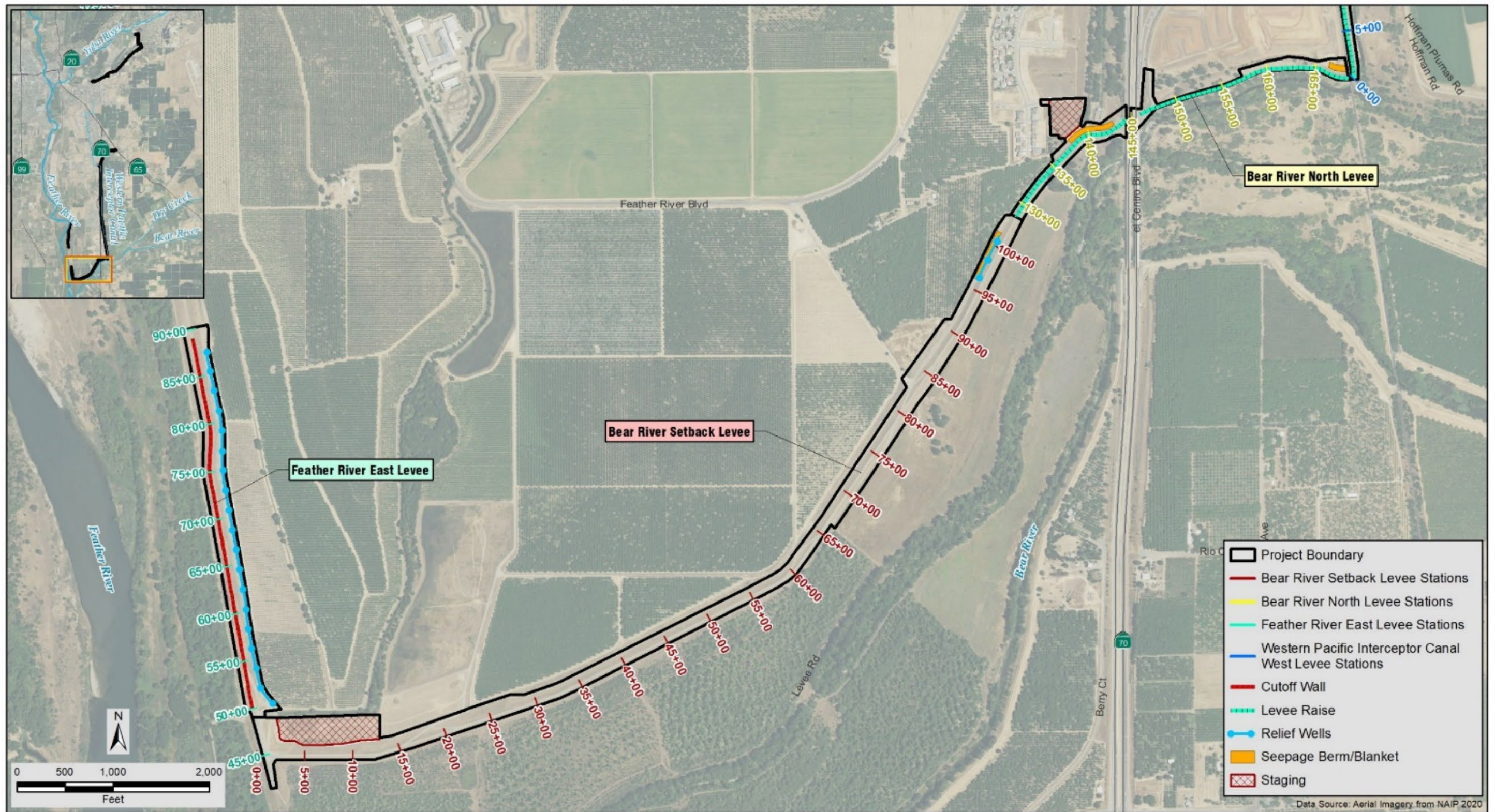
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Figure 2-13. Feather River East Levee Project Components



Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

Figure 2-14. Bear River Setback Levee and Bear River North Levee Project Components



Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

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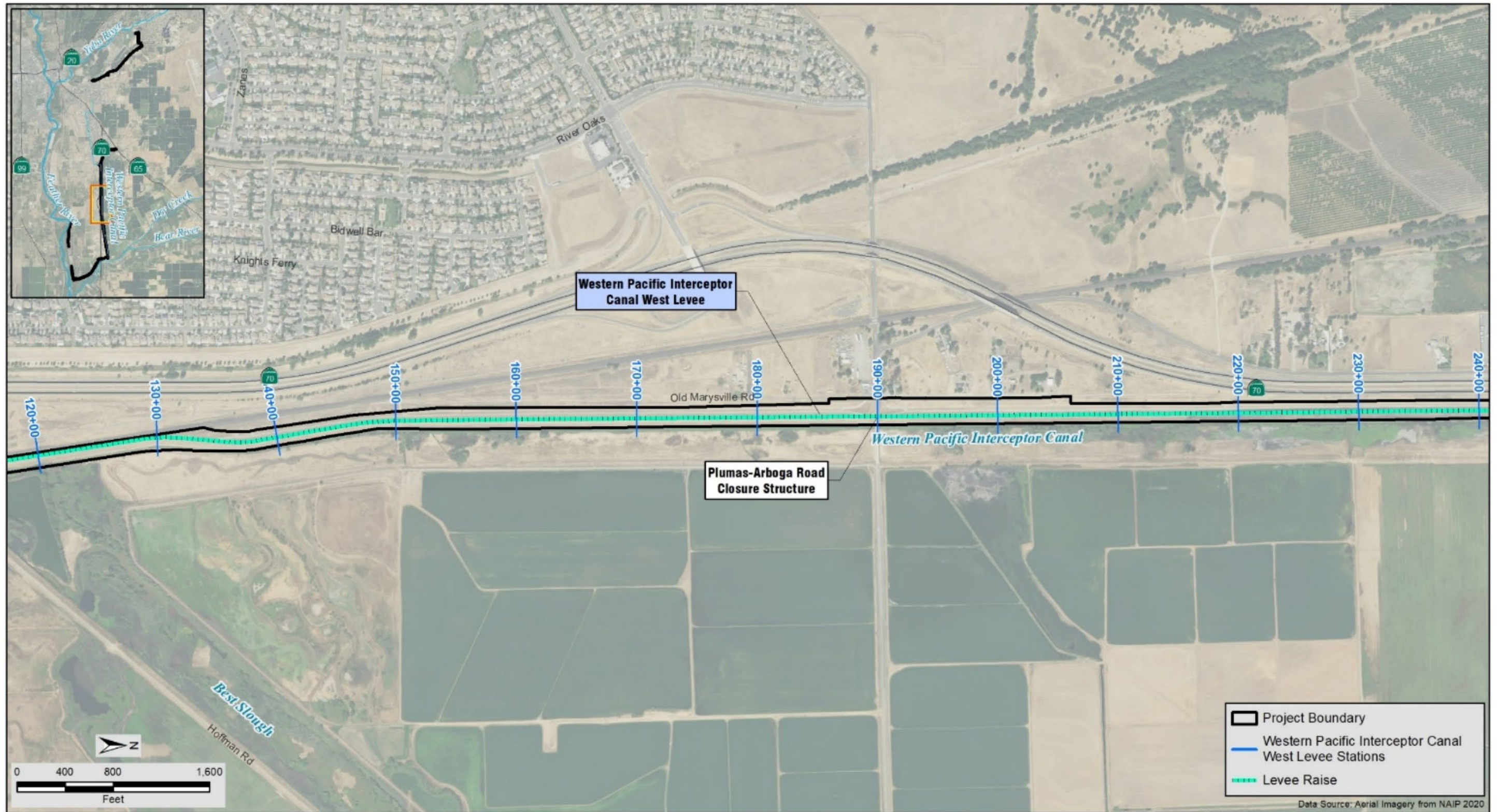
Figure 2-15a. Western Pacific Interceptor Canal West Levee Project Components



Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

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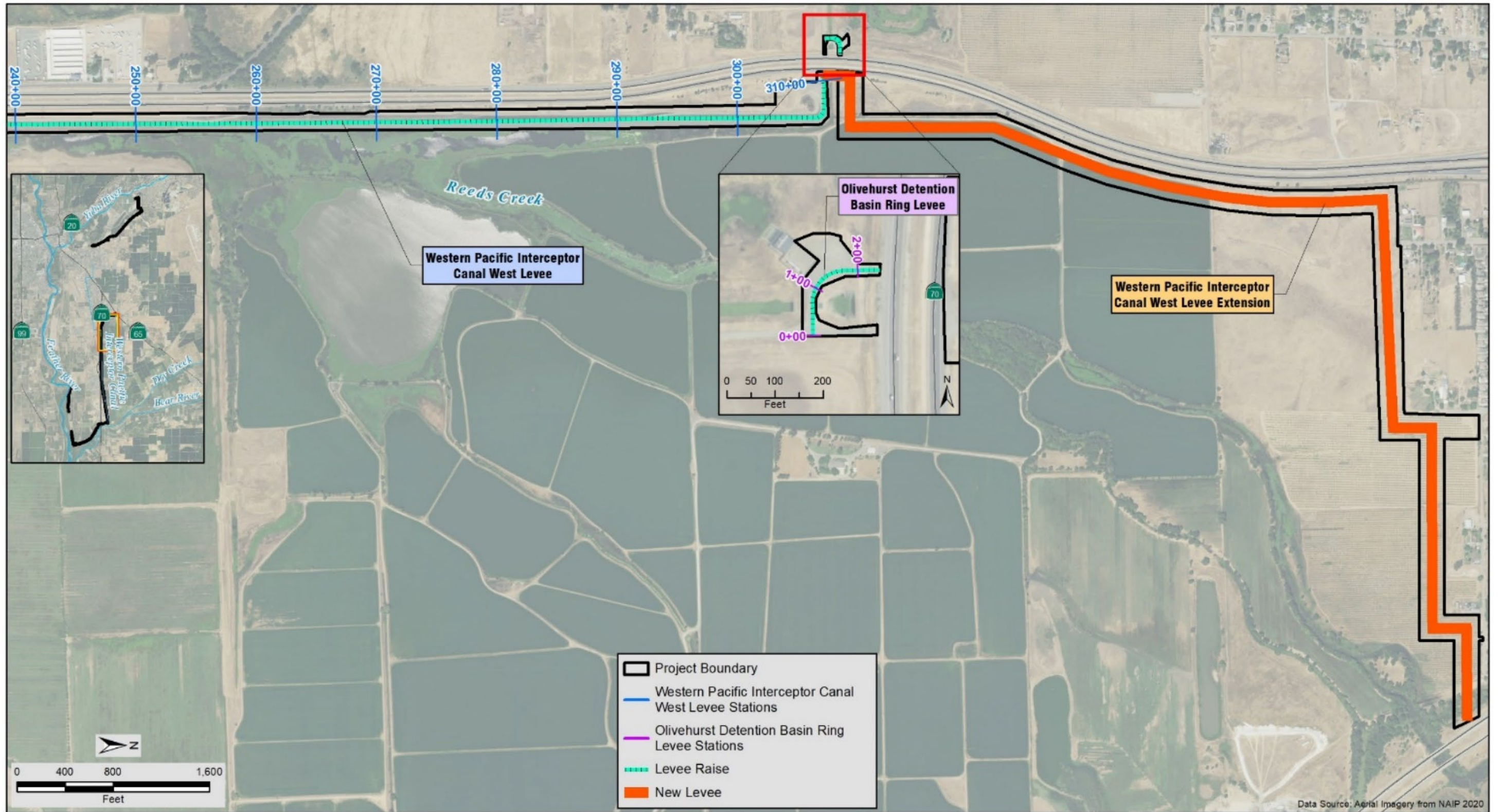
Figure 2-15b. Western Pacific Interceptor Canal West Levee Project Components



Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

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Figure 2-15c. Western Pacific Interceptor Canal West Levee Project Components



Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

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Chapter 3. Environmental Setting, Impacts, and Mitigation Measures

3.1 Approach to the Environmental Analysis

3.1.1 Scope of the Analysis

State CEQA Guidelines require an EIR to evaluate any potentially significant effects of the proposed project on the physical environment and to identify feasible mitigation for any such effects determined to be potentially significant or significant. All phases of the proposed project, including construction and O&M, are evaluated in the analysis. CCR Title 14, Section 15126.2 (14 CCR Section 15126.2) states that:

An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis commences. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, and human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected.

An EIR must also discuss inconsistencies between the proposed project and adopted applicable general plans and regional plans (14 CCR Section 15125[d]).

According to 14 CCR Section 15126.4, an EIR must describe potentially feasible measures that could avoid or minimize significant adverse impacts (14 CCR Section 15126.4[a][1]) and feasible and practicable measures that are fully enforceable through permit conditions, agreements, or other legally binding processes (14 CCR Section 15126.4[a][2]). Mitigation measures are not required for impacts that are found to be less than significant.

Before beginning preparation of this Draft EIR, the potential for significant impacts to environmental resource topic areas contained in Appendix G of the State CEQA Guidelines was evaluated. This Draft EIR focused on those environmental resources that were determined to have a potential to be significantly affected by project implementation. The following environmental topics, Energy, Public Services, Recreation, and Wildfire have been eliminated from detailed consideration, were presented as such in the NOP, and are not discussed further in this Draft EIR because they have no potential to cause a significant impact for the reasons described in Section 1.6, “Scope and Focus of the EIR.”

The remaining environmental resource topic areas contained in Appendix G of the State CEQA Guidelines are addressed in this chapter of the Draft EIR because the project could have significant direct, indirect, and/or cumulative environmental effects on them.

3.1.2 Format of the Analysis

This chapter is organized by topic area, generally corresponding to those in the CEQA Environmental Checklist (State CEQA Guidelines Appendix G, as amended). Each section follows the format described below.

Environmental Setting

The “Environmental Setting” subsections provide an overview of the baseline physical environmental conditions (i.e., the environmental baseline) on the project site, and in surrounding areas as appropriate, in accordance with 14 CCR Section 15125, at the time the revised NOP was published on August 2, 2021.

Regulatory Setting

The “Regulatory Setting” subsections identify formally adopted plans, policies, laws, regulations, and ordinances potentially relevant to each topic area and describes required authorizations, permits, permissions, and other approvals necessary to implement the proposed project. The EIR must address possible conflicts between the proposed project and the objectives of applicable Federal, State, regional, and local adopted land use plans, policies, or controls for the area.

According to State CEQA Guidelines 14 CCR Section 15125(d), an EIR, “...shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans.” Although the EIR discusses potential inconsistencies with applicable plans and policies for several jurisdictions, the final authority for interpreting policy statements and determining the proposed project’s consistency with adopted policies rests with the governing body of the jurisdiction in question, either the City Council or the County Board of Supervisors. Where inconsistencies do occur, they are addressed as topical impacts within each applicable issue area in this chapter. For some issue areas, there may not be any applicable policies of a particular jurisdiction’s general plan based on the type of improvements or changes proposed within that

jurisdiction. Where this is the case, the “Regulatory Setting” subsections include a note that there are no applicable policies from this jurisdiction’s general plan.

Environmental Impacts and Mitigation Measures

The “Environmental Impacts and Mitigation Measures” subsections identify the impacts of the proposed project on the existing human and natural environment, in accordance with the State CEQA Guidelines (14 CCR Sections 15125 and 15143). The following discussions are included in the “Environmental Impacts and Mitigation Measures” subsections.

Thresholds of Significance

These subsections identify the criteria established by the lead agency to define the level at which an impact would be considered significant in accordance with CEQA. Thresholds may be quantitative or qualitative and may be based on examples found in CEQA regulations or the State CEQA Guidelines; scientific and factual data relative to the lead agency’s jurisdiction; legislative or regulatory performance standards of Federal, State, regional, or local agencies relevant to the impact analysis; City or County goals, objectives, and policies (e.g., City or County General Plan); views of the public in the affected areas; the policy/regulatory environment of affected jurisdictions; or other factors. Generally, however, the thresholds of significance used are the same as or derived from Appendix G of the State CEQA Guidelines, as amended.

Issues Not Discussed Further

These subsections describe specific issues related to a given topic area’s thresholds of significance for which there would be no impact or minimal impact and no further impact discussion is required under the State CEQA Guidelines. No impact indicates that the construction and O&M activities, including specific project elements, would not have any direct or indirect effects on the environment. It means no change from existing conditions would occur.

Analysis Methodology

These subsections describe the methods, process, procedures, and/or assumptions used to formulate and conduct the impact analysis. These subsections also summarize any relevant comments received on the NOP and considered in the impact analysis.

Impact Analysis and Mitigation Measures

These subsections identify the impacts of the proposed project on the existing human and natural environment, in accordance with the State CEQA Guidelines (14 CCR Sections 15125 and 15143) and mitigation measures identified to avoid, minimize, rectify, reduce, or compensate for significant and potentially significant impacts of the proposed project, in accordance with the State CEQA Guidelines (14 CCR Sections 15370, 15002[a][3], 15021[a][2], and 15091[a][1]).

The impact analysis assesses potential impacts of the proposed project (including off-site components, such as staging areas, haul routes, and access roads) on the physical environment.

This assessment also specifies why impacts are found to be significant and unavoidable, significant or potentially significant, or less than significant. Some of the potential impacts that may result from implementation of the proposed project would be temporary and short-term impacts resulting from construction activities, while other impacts would be permanent. Because the specific construction schedule is not known at this time, a worst-case scenario in which all project components are constructed concurrently and completed in 1 year was analyzed for impacts related to air quality, energy, GHG emissions, and transportation.

Project impacts can be direct or indirect. Direct impacts are those that would be caused by the project and would occur at the same time and place as the project. Indirect effects are reasonably foreseeable consequences that may occur later or at a distance that is removed from the project site. Examples of indirect impacts include growth-inducing impacts and other impacts related to changes in land use patterns and resulting effects on the physical environment.

Impacts are listed numerically and sequentially throughout each section. For example, impacts in Section 3.4, “Air Quality,” are identified as 3.4-1, 3.4-2, etc. An impact statement precedes the discussion of each impact and provides a summary of the impact. The discussion that follows the impact statement includes the evidence on which a conclusion is based regarding the level of impact.

The level of impact is determined by comparing anticipated impacts with baseline conditions. Under CEQA, the environmental setting as it exists at the time the NOP is published (as defined above and as described in this chapter) normally represents baseline physical conditions. The levels of impact are defined as follows:

- A **beneficial** impact indicates a positive change or improvement in the environment and for which no mitigation measures (which may include measures to avoid, minimize, rectify, reduce, or compensate for effects) are required.
- A **less-than-significant impact** indicates an adverse impact but one that is not a substantial or potentially substantial adverse change in the physical environment. This impact level does not require mitigation under CEQA.
- A **potentially significant impact** indicates an adverse impact that, if it were to occur, would be considered a significant impact as described immediately below; however, the occurrence of the impact cannot be determined with certainty at this time. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact.
- A **significant impact** as defined by CEQA Section 21068 indicates, “...a substantial, or potentially substantial, adverse change in the environment.” Levels of significance can vary by project element, based on the change in the existing physical condition. Under CEQA, mitigation measures must be identified, where feasible, to reduce the magnitude of significant impacts.

Mitigation measures to avoid, minimize, rectify, reduce, or compensate for significant and potentially significant impacts of the proposed project, in accordance with the State CEQA Guidelines (14 CCR Sections 15370, 15002[a][3], 15021[a][2], and 15091[a][1]), where feasible, are identified for each potentially significant or significant impact. Each mitigation measure is identified numerically to correspond with the number of the impact being reduced by the measure. For example, Impact 3.3-1 would be mitigated by Mitigation Measure 3.3-1. Where no mitigation is required because the impact conclusion is “less than significant,” then the statement “no mitigation is required” is provided.

In accordance with PRC Section 21081.6(a), the lead agency, if it approves the project, must adopt a Mitigation Monitoring and Reporting Program when it certifies the EIR if one or more mitigation measure is included in the EIR. The lead agency also must adopt findings identifying each significant effect of the project and the extent to which feasible mitigation measures have been adopted.

Residual Significant Impacts

The “Residual Significant Impacts” section identifies all significant impacts that would remain significant after implementation of the associated mitigation measures. Where no feasible mitigation is available to reduce impacts to a less-than-significant level, the impacts are identified as remaining “significant and unavoidable” and the statement “no feasible mitigation measures are available” is provided with an explanation. In some cases, all feasible and available mitigation measures are not sufficient to reduce an impact to a “less-than-significant” level. When this occurs, the impacts are described as remaining “significant and unavoidable.” Significant and unavoidable impacts are also summarized in Chapter 4, “Other CEQA-required Sections.”

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3.2 Aesthetics

This section describes the existing visual character, viewer sensitivity, and overall visual quality of the project area. Representative photographs showing the existing visual character at key locations in the project area are also included. The impact analysis determines whether implementing the project would adversely change the visual character and quality of existing scenic resources.

3.2.1 Environmental Setting

Visual Character and Quality

Both natural and created features in a landscape contribute to its visual character and quality. Landscape characteristics that influence visual character and quality include geologic, hydrologic, botanical, wildlife, recreational, and urban features. The basic elements that comprise the visual character and quality of landscape features are form, line, color, and texture. The appearance of the landscape is described in terms of the dominance of each of these elements. The majority of the project components are within the existing RD 784 urban levee system, which is a dominant feature of the landscape within and surrounding the project site. The existing levee system is visible from surrounding viewpoints throughout the region. However, new levee segments, including the WPIC West Levee Extension and the Goldfields West Levee proposed as part of the project are located outside of the existing levee system.

The WPIC West Levee Extension would connect to the existing WPIC West Levee and extend approximately 1.8 miles to the north along the east side of SR 70 and east along the south side of Olivehurst before connecting to SR 65. This area is dominated by agricultural production, ruderal land, and a small patch of riparian habitat near SR 65. Additionally, along the western edge of the Goldfields, a new levee embankment would be constructed along the alignment of an existing mine tailing embankment. This area is characterized by mining tailings and ponds and adjacent agricultural production.

The project area is relatively flat and primarily rural in nature. The existing levee system is the dominant feature throughout most of the project area, and most adjacent areas are dominated by agricultural lands consisting of orchard trees, fallow fields, and row crops. Small patches of riparian vegetation occur along the western edge of the Goldfields and at the east end of the WPIC West Levee Extension. Residential developments occur in several locations adjacent to or near some of the project components, including the western portion of the Yuba River South Levee, the Bear River North Levee, the southern portion of the WPIC West Levee, and the northern portion of the WPIC West Levee Extension. A Class I bike path is located between the WPIC West Levee and adjacent residential development.

The Goldfields is an historic mining area dominated by irregular piles of tan-brown cobbles up to 90 feet high, covered with sparse weedy vegetation and interspersed with mining ponds and patches of riparian vegetation. These cobble mounds and ponds are the result of dredger mining

activities along the Yuba River and its adjacent alluvial plain. Mining activities continue in portions of the Goldfields but are dominated by aggregate production.

Landscaping adjacent to the project site includes lawns, shrubs, and trees that are associated with residential developments and scattered rural residences. The levee slopes are typically vegetated with grasses and other weeds that are regularly maintained.

The built environment adjacent to the project site includes residences, light industrial facilities, agricultural buildings and equipment, and local roads. The Peach Tree Golf and Country Club is located immediately north of the western end of the Yuba River South Levee portion of the project site.

Simpson-Dantoni Road provides the primary access to the northern portion of the project site, and SR 70 provides the primary access to the southern portion. Additionally, local Yuba County roadways and farm roads, many of which are unpaved, provide access for residents and farm workers in the project area. *See* “Site Access, Staging, and Project-related Transportation” in Section 2.4, “Description of Proposed Project,” for more detail on local roadways that would be used to access the project site.

Viewer Sensitivity

In addition to visual character and quality, viewer sensitivity is considered in assessing the effects of visual change and is a function of several factors. Viewer sensitivity is based on the visibility of resources in the landscape, proximity of the viewers to the visual resources, elevation of the viewers relative to the visual resources, frequency and duration of views, numbers of viewers, and types and expectations of individuals and viewer groups. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer. Generally, the closer a resource is to the viewer, the more dominant, and thus the more visually important. Visual sensitivity is generally higher for views that are observed by residents of an area and people who are driving for pleasure or engaging in recreation activities such as walking, cycling, fishing, or bird watching. Sensitivity is lower for people engaged in work activities or commuting to work.

Viewer sensitivity is considered high for residents adjacent to the project site and non-commute viewers driving along SR 70, Simpson-Dantoni Road, and other local roadways in close vicinity to the project site. Additionally, viewer sensitivity is considered high for recreationalists at the Peach Tree Golf and Country Club. However, vegetation along the south side of the golf course obscures the Yuba River South Levee and is likely to be tall enough to obscure construction equipment on top of the levee.

The Feather River is west of the southern portion of the project site, but views from the Feather River toward the project site are blocked by vegetation and the general topography of the area. The project site is approximately 0.5 mile from the Yuba River at its closest point and is not visible from the river. Recreationist along approximately 0.5 mile of the Bear River would have

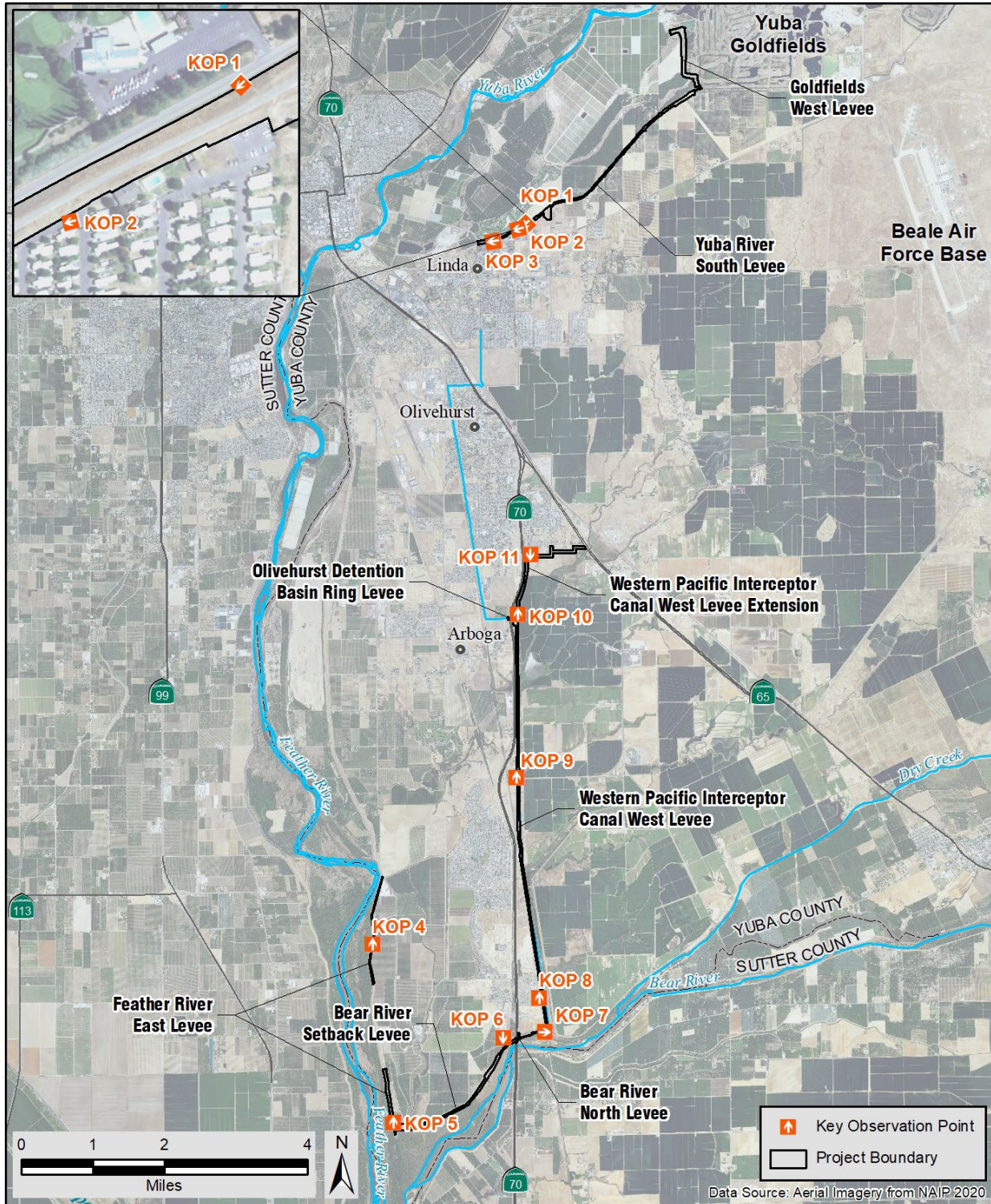
views of the southeastern portion of the project site. However, SR 70 is also visible to recreationists in this area, and sensitivity of these viewers to construction activities would be reduced. Therefore, viewer sensitivity from rivers near the project site is considered low.

Existing Visual Resources

Under existing conditions, the project site does not provide scenic assets to the landscape. As previously stated, the existing levee system is a dominant feature of the landscape. Views of the levee system can be seen from nearby roadways and residences located adjacent to the levee system, including most of the project site. There is limited access to lands surrounding the Goldfield West Levee; therefore, the public cannot view this portion of the project site. The WPIC West Levee Extension would be visible from SR 70, SR 65, and residences and local roadways immediately north of the proposed alignment.

Key Observation Points (KOPs) are critical viewpoints representing areas commonly used by sensitive viewers – nearby residences and motorists driving near the project site – to view the project site. Eleven KOPs have been identified as shown in **Figure 3.2-1**. A representative photograph taken by GEI Consultants, Inc. (GEI) in July 2021 from each KOP is shown in **Figures 3.2-2 through 3.2-12**.

Figure 3.2-1. Key Observation Point Locations



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Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021; Key Observation Points identified and photographed by GEI Consultants, Inc. in 2021

Figure 3.2-2. KOP-1: Yuba River South Levee Cutoff Wall Area with Peach Tree Golf and Country Club on Right, Facing West on Simpson-Dantoni Road (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-3. KOP-2: Yuba River South Levee Cutoff Wall Area, from Casa Mia Trailer Park, Facing West (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-4. KOP-3: Yuba River South Levee Cutoff Wall Area, Facing West on Hammonton-Smartville Road (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-5. KOP-4: Feather River East Levee Raise Area, Facing North Toward Nearby Rural Residence (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-6. KOP-5: Feather River East Levee Seepage Remediation Area and Existing Relief Well System, Facing North (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-7. KOP-6: View of Staging Area and Bear River North Levee from Residential Development West of State Route 70 (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-8. KOP-7: South End of Residential Area East of State Route 70, Facing East at Bear River North Levee on Right, WPIC West Levee in Distance (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-9. KOP-8: East Side of Residential Area at South End of WPIC West Levee, Facing North with Railroad Track and Levee on Right (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-10. KOP-9: Residential Area in Middle Portion of WPIC West Levee, Facing North from Plumas-Arboga Road with Levee on Right (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-11. KOP-10: WPIC West Levee Extension Alignment along State Route 70, Facing North from North End of Existing Levee (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Figure 3.2-12. KOP-11: View of WPIC West Levee Extension Area, Facing South from South End of Dan Avenue (July 21, 2021).



Source: Photograph taken by GEI Consultants, Inc. in 2021

Scenic Vistas, Corridors, and Highways

A scenic vista is generally considered a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Some scenic vistas are officially designated by public agencies. Typical scenic vistas in the project vicinity include locations where views of rivers and open space areas can be obtained. From the Bear River there are views of the southeastern portion of the project site. Yuba County has not identified or designated any scenic vistas; however, the General Plan includes non-specific guidance to retain or enhance scenic views (Yuba County 2011).

Scenic corridors are enclosed areas of landscape that when viewed as a single entity include the total field of vision from a specific point or series of points along a linear route. No scenic corridors are present in the project vicinity and no designated scenic highways or highways recommended for designation are present within 20 miles of the project area (Yuba County 2011; Caltrans 2015, 2019).

Light and Glare

Within the project area and vicinity, light and glare are produced from vehicle headlights, streetlights, and interior and exterior lighting from buildings. Most of the project site is located in a rural area where there are not substantial light sources. The exceptions are where highways, local streets, and dense residential developments and highways occur, including adjacent to the Yuba River South Levee cutoff wall work area, the Bear River North Levee, the south end of the

WPIC West Levee, and the northern portion of the WPIC West Levee Extension. Within the vicinity of the project site, uses sensitive to nighttime lighting include residences and motorists travelling along State highways and local roadways.

3.2.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to aesthetics apply to the project.

State Plans, Policies, Regulations, and Laws

No State plans, policies, regulations, or laws related to aesthetics apply to the project.

Regional and Local Plans, Policies, Regulations, and Ordinances

The Yuba County 2030 General Plan includes goals and policies addressing aesthetics in the Natural Resource Element (Yuba County 2011). The following goal and policies are relevant to the proposed project.

GOAL NR.9: Visual Resources. Preservation of Yuba County's important visual resources.

- **Policy NR9.1:** New developments near the Yuba, Bear, and Feather rivers should be designed and located in a way that retains or enhances scenic views of these important visual resources.
- **Policy NR9.3:** Development in Rural Communities should be designed to preserve important scenic resources, landmarks, and icons that positively contribute to the rural character.
- **Policy NR9.7:** New construction should be designed to avoid excessive cut and fill by following the natural contour of the subject site.

GOAL NR10: Trees and Other Important Vegetation. Preserve the County's trees and other vegetation that provide aesthetic and habitat benefits.

- **Policy NR10.1:** Building placement, grading, and circulation should be planned to retain as much existing native vegetation as feasible, with a priority on preserving existing oak trees that have a [diameter at breast height] DBH of 6 inches or greater and all other trees that have a DBH of 30 inches or greater. The County's policies and standards for fire safety may override consideration of retaining existing vegetation in certain circumstances.

GOAL NR11: Aesthetics of the Built Environment. New construction is compatible with, and supportive of, locally important aspects of the visual environment.

- **Policy NR11.2:** In new development areas, service, utility, loading areas, roof-mounted equipment, and noise-generating equipment shall be screened, design, and located to reduce visibility, odor, and noise as experienced at surrounding properties and pedestrian areas.
- **Policy NR11.4:** To the maximum extent feasible, new developments shall avoid adverse light and glare effects on adjacent roads, neighboring properties, and pedestrian areas through careful location of on-site lighting, use of non-reflective paint and building materials,

screening or shading light at the source, use of vegetation screening, use of directional lighting, use of lower intensity lighting, or use of timing devices or sound/motion-controlled lighting, or other equally effective means.

3.2.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended.

Implementing the project would have a significant impact on aesthetics if it would result in any of the following:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a State scenic highway
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area

Analysis Methodology

This impact analysis uses a qualitative approach for characterizing and evaluating the visual resources of the area that could be affected by project implementation. Potential impacts on aesthetics were evaluated based on the following three steps:

- An objective inventory of the visual features or visual resources that comprise the landscape in the project area
- An assessment of the character and quality of the visual resources in the context of the overall character of the regional visual landscape
- A determination of the importance to viewers (i.e., sensitivity of the viewers) and the potential viewer response to the identified visual resources in the landscape

The aesthetic value of an area is a measure of the variety and contrast of the area's visual features, the character and quality of those features, and the scope and scale of the scene, combined with the anticipated viewer response. The above factors were considered in combination with the long-term effect of the project components and the type and duration of anticipated construction activities.

Issues Not Discussed Further

Scenic Vistas. No designated scenic vistas have been officially designated for the project area or vicinity in the Yuba County 2030 General Plan (Yuba County 2011). The existing visual character of the project site is dominated by agricultural lands and ruderal vegetation along the levee system. Additionally, powerlines, structures, rural residences, and roadways are present in

the project vicinity. Therefore, no impact to scenic vistas would occur, and this issue is not discussed further.

State Scenic Highways. The project site is not located within or adjacent to, nor is it visible from, any State-designated scenic highway. Furthermore, there are no county-designated scenic highways in Yuba County. Therefore, no impact to scenic resources within a State scenic highway would occur, and this issue is not discussed further.

Impact Analysis and Mitigation Measures

Impact 3.2-1: Degradation of Visual Character and Quality

Implementing the proposed project would change to the visual character and quality of the project site, however, most changes would be temporary and only occur during construction activities. Construction activities and equipment would be visible to travelers along SR 70, SR 65, Simpson-Dantoni Road, Hammonton-Smartville Road, and other local roadways, and from residences adjacent to portions of the project site. Additionally, temporary staging areas along the Bear River North Levee and Yuba River South Levee would be located in close proximity to nearby residences (*refer to Figure 3.2-7* for a view of the former). The construction time frame would be relatively short in any one portion of the project site. While construction activities and the presence of staging equipment would temporarily alter the visual character and quality of the land, it would not substantially degrade visual character or quality in most portions of the project site because of the short-term nature of the impact and the current visual character and quality of areas where work would occur along existing levees. The Goldfields West Levee would be constructed in an area that is not accessible to the general public or visible by sensitive viewers; therefore, visual effects of constructing this levee are not discussed further.

Levee raises of up to approximately 2 feet would occur on the Yuba River South Levee (KOP-1 through KOP-3), Bear River North Levee (KOP-6 and KOP-7), and WPIC West Levee (KOP-8 and KOP-9). Where these raises would be completed with aggregate base or earthen fill, the permanent change would not be substantially different than current conditions and would be imperceptible in many areas. Therefore, this would not substantially degrade the visual character or quality of the landscape. If it is determined that there is insufficient area to accommodate a widened footprint required by raising the WPIC West Levee, additional levee height may be provided by constructing a concrete parapet wall. *See Figure 2-5* in Chapter 2, “Project Description,” for a photograph of a typical parapet wall. The parapet wall would be visible from residences west of the WPIC West Levee (*see KOP-8 and 9-KOP*) and from SR 70. This would be a new visual feature in the landscape and would impact the overall visual character and quality but would not substantially degrade the visual character or quality because of its location on top of an existing artificial levee that has already substantially altered the visual character and quality of this area.

Closure structures would be constructed where the levees intersect Dantoni Road, the UPRR, and Plumas-Arboga Road (*see Figures 2-12, 2-15a, and 2-15b* in Chapter 2, “Project Description”).

These structures would consist of short concrete walls with grooves that accommodate panels to form a watertight barrier. While they would be a new feature in the landscape, they would be constructed along the existing levee system where it intersects paved roadways and the railroad and, therefore, would not substantially degrade the visual character or quality of the relevant locations.

Seepage remediation may include cutoff walls, seepage berm/blanket, and relief wells. Cutoff walls proposed for Yuba River South Levee and Feather River East Levee would be constructed through the crown of existing levees and would therefore have no permanent change in the levees' appearance (*see* KOP-1 and KOP-6 for existing conditions at these levee segments). Seepage berms and blanket would slightly alter levee characteristics by adding fill to the landside toe, but these features would have the same general appearance as the levee slope and adjacent maintenance zones. Relief wells would be installed below grade and in areas with existing drainage infrastructure, resulting in very minor permanent changes to the landscape. *See* Figure 2-10 in Chapter 2, "Project Description," for a photograph of the existing relief well system along the Feather River East Levee. For these reasons, potential seepage remediation project components would not substantially alter the visual character or quality of the affected areas.

The most substantial permanent change to the landscape that would be visible to the general public is the WPIC West Levee Extension. The current landscape in this area includes flat ruderal land, agricultural crops (orchard and rice), and fallow fields (*see* KOP-10 and KOP-11), and a small patch of riparian habitat adjacent to SR 65. The levee extension would be approximately 15-20 feet high and would have a visual character similar to the existing WPIC West Levee and would increase the amount of levee that is immediately adjacent to SR 70 by less than 1 mile. Extending the levee would convert approximately 28 acres of agricultural land and 0.75 acre of woodland vegetation to levee embankment and adjacent maintenance zone. This change in visual character would likely have a relatively minor effect on motorists, most of whom are commuters and less sensitive to such changes. However, residents at approximately 15 adjacent or nearby homes are considered highly sensitive viewers, and the visual character and quality of the site and surroundings for them could be substantially degraded from the presence of the new levee. Because the land is flat and there are no intervening large structures, some of these residences would have unobstructed views of personnel and equipment within 100 feet from their homes during levee construction, and unobstructed views of the new levee.

Temporary, short-term impacts during construction would be less than significant for portions of the project site where existing levees occur, or no sensitive viewers are located nearby; this includes all portions of the project site except the WPIC West Levee Extension. Imperceptible or relatively minor permanent changes to the visual character and quality of the project site from adding relief wells, raising levee segments, and constructing parapet walls, landside blankets, seepage berms, and closure structures also would not substantially degrade the visual character or quality of the affected areas and would be less than significant. However, because views from some residences adjacent to the WPIC West Levee Extension would be substantially altered

during and after construction, the temporary and permanent aesthetic impacts in this portion of the project site would be **potentially significant**.

Mitigation Measures: Mitigation Measure 3.2-1 has been identified to address this impact.

Mitigation Measure 3.2-1a: Minimize Temporary Visual Effects during WPIC West Levee Extension Construction adjacent to Residences.

TRLIA will locate staging and material storage areas as far away from residences adjacent to the WPIC West Levee Extension as feasible. Where construction, staging, or storage areas are 300 feet or closer to residences, to the extent feasible, TRLIA will require its construction contractor to install and maintain a temporary 6-foot-tall, screened fence or other visual barrier at the edge of the construction, staging, or storage area, between the work area and the residence(s).

Timing: Before and during WPIC West Levee Extension construction.

Responsibility: TRLIA.

Mitigation Measure 3.2-1b: Install Permanent Fencing or Vegetation Screening for Interested Residents Immediately Adjacent to the WPIC West Levee Extension.

TRLIA will offer to install permanent fencing or vegetation outside the levee maintenance corridor for interested residents immediately adjacent to and with unobstructed views of the levee. TRLIA will not be responsible for maintenance or replacement of fencing or vegetation.

Timing: After WPIC West Levee Extension construction is complete.

Responsibility: TRLIA.

Significance after Mitigation: Implementing Mitigation Measures 3.2-1a and 3.2-1b would reduce potentially significant temporary and permanent impacts associated with degradation of visual character during and after construction activities associated with the WPIC West Levee Extension, but not to a less-than-significant level, because construction activities would still be visible, and views would be permanently altered. No feasible mitigation is available to reduce the temporary construction-related and permanent impacts from degradation of visual character in this portion of the project site to a less-than-significant level. Therefore, impacts of the WPIC West Levee Extension portion of the proposed project would be **potentially significant and unavoidable**.

Impact 3.2-2 New Source of Substantial Light or Glare

Implementing the proposed project would not require the addition of any new permanent lighting or other potential sources of substantial light or glare. Nearly all construction activities would occur during daylight hours and therefore would not require temporary lighting. If the Feather River East Levee cutoff wall option is selected for design and if deemed necessary to complete

construction before the beginning of the flood season, construction activities in that area may occur up to 24 hours a day. If nighttime construction is necessary, all nighttime construction lighting would be shielded and directed away from residences, the nearest of which is approximately 0.4-mile northeast of the project site. Given the distance to this residence and intervening orchard, it is very unlikely that they would be impacted by nighttime construction lighting.

The presence of construction equipment during the construction phase could generate minor amounts of daytime glare in the area. Such glare could be experienced by the residents closest to the levees; however, this impact is not considered significant due to the temporary, short-term nature and continual movement of construction activities such that impacts at any one location would be of short duration. Therefore, this impact is considered to be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

Impacts related to temporary and permanent degradation of visual character or quality associated with constructing the WPIC West Levee Extension would be potentially significant. Feasible mitigation is available and would be implemented to minimize temporary construction-related visual impacts and permanent degradation of visual character and quality, but significant visual impacts during and after construction activities would remain. Therefore, these residual impacts would be **potentially significant and unavoidable**.

3.3 Agriculture and Forestry Resources

This section describes agricultural uses and forestry resources on and adjacent to the project site, evaluates the significance and quality of agricultural land, summarizes the regulatory setting related to agricultural and forestry resources, and analyzes the potential impacts to agricultural and forestry resources from implementing the project.

3.3.1 Environmental Setting

Yuba County Agricultural Resources

Agricultural production within Yuba County is the single most important economic activity and most prevalent land use in Yuba County. Agriculture not only contributes to the local economy but also helps to define the county's visual and social character, maintains productive land in open space, supports wildlife habitats and migration corridors, and provides access to a local food source (Yuba County 2011a). In 2019, the total gross value of Yuba County's agricultural production was approximately \$234 million (M). Rice remains Yuba County's top crop generating approximately \$60M in gross value, walnuts second in rank at \$54M, and prunes rank third generating \$25.5M in gross value (Yuba County 2019).

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) was established by the State in 1982 to continue mapping efforts begun in 1975 by the U.S. Soil Conservation Service (now the U.S. Natural Resources Conservation Service [NRCS]). Under the FMMP, DOC prepares agricultural resource maps based on soil quality and land use. According to the FMMP, Yuba County had 38,591 acres of Prime Farmland, 10,563 acres of Farmland of Statewide Importance, 32,684 acres of Unique Farmland, and no Farmland of Local Importance in 2018 (DOC 2018a). Cropland and grazing lands account for approximately 60 percent of the County's total land area. Cropland is found in areas of prime agricultural soil and soils with unique suitability to certain crops in the western Valley floor area of the county along the historic floodplain of the Yuba and Feather rivers due to the relatively flat topography, water supply and soil conditions. Grazing lands are found primarily in central and eastern portions of the county. (Yuba County 2011a.)

Agricultural Uses on the Project Site

Portions of the project site located along the western edge of the Goldfields, Yuba River South Levee, WPIC West Levee, Bear River North Levee, Bear River Setback Levee, and WPIC West Levee Extension are within land zoned as Exclusive Agriculture (AE). According to the Yuba County Development Code (Yuba County 2020), the purpose of the AE district is to:

1. Eliminate the encroachment of land uses that are incompatible with the long-term agricultural use of land.
2. Preserve agricultural land in order to conserve the County's economic resources that are vital for a healthy agricultural economy within the County.

3. Create standards for the AE district that maintain the vitality of the agricultural sector by retaining parcel sizes necessary to sustain viable agricultural operations, protecting agricultural practices and activities by minimizing land-use conflicts, and protecting agricultural resources by regulating land uses and development intensities in agricultural areas. Prevent the unnecessary conversion of agricultural land to urban or other uses.

Not all land on the project site that is zoned AE is currently used for agricultural purposes or designated as Farmland by DOC. Portions of the project site that are designated as Farmland (Prime Farmland or Unique Farmland) and are actively used for agricultural production are limited to the Goldfields West Levee and WPIC West Levee Extension (DOC 2018b). **Figure 3.3-1** provides an overview of FMMP designations in the project vicinity and **Figures 3.3-2** and **3.3-3** show FMMP designations within the Goldfields West Levee/Yuba River South Levee and WPIC West Levee Extension portions of the project site, respectively.

FMMP designations on the project site include:

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- **Unique Farmland**—Land of lesser quality soils used for the production of the State’s leading agricultural cash crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years before the mapping date.
- **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- **Urban and Built-Up Land**—Land that is used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.
- **Other Land**—Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development.

The proposed staging area south of the Yuba River South Levee is identified as Grazing Land but does not appear to be actively grazed, and a portion of the levee itself is erroneously mapped as Farmland. The Goldfields West Levee portion of the project site includes approximately 1

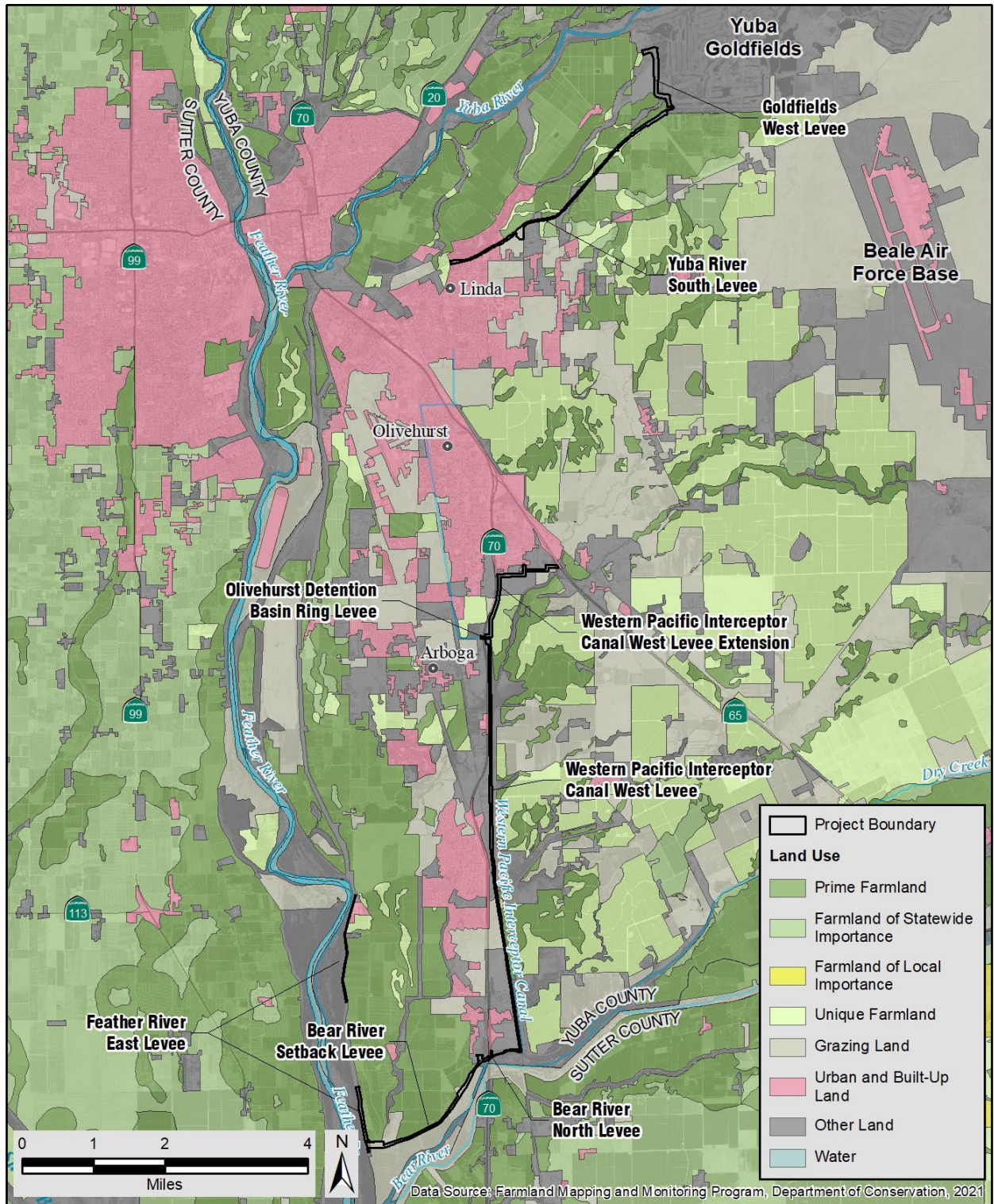
acre of Prime and Unique Farmland along the edge of a walnut orchard; approximately 3 additional acres in this area are designated as Other Land but occur along the edge of a recently planted orchard, based on recent Google Earth™ imagery. The WPIC West Levee Extension portion of the project site includes approximately 14 acres of orchard and 14 acres of rice land. The rice is designated as Unique Farmland, but the orchard is designated as Grazing Land and Other Land. This orchard is apparent on recent Google Earth™ imagery and was observed during field surveys of publicly accessible portions of the project site. Grazing Land is also mapped adjacent to the Bear River Setback Levee and Bear River North Levee, including the proposed staging area; this land is only grazed for vegetation management purposes.

Forestry Resources

Appendix G of the State CEQA Guidelines defines “forest land” as land that can support 10 percent native tree cover and forest vegetation of any species under natural conditions and that allows for management of one or more forest resources—including timber, aesthetics, fish and wildlife, biodiversity, water quality, and recreation—and other public benefits (PRC 12220[g]). In 2005, Yuba County had a total of 95,000 acres of forest land (Yuba County 2011b).

The Yuba Goldfields West Levee portion of the project site supports small patches of mixed riparian vegetation including scattered trees, and a small woodland area is present at the eastern end of the WPIC West Levee Extension (*see* Section 3.5, “Biological Resources,” for further discussion). Some vegetation in the Yuba Goldfields West Levee portion of the project site supports 10 percent native tree cover and provides wildlife habitat; woodland at the eastern end of the WPIC West Levee Extension also supports 10 percent native tree cover and provides wildlife habitat and aesthetic values. Therefore, these areas satisfy the requirements of PRC Section 12220(g).

Figure 3.3-1. Overview of Farmland Mapping and Monitoring Designations in the Project Vicinity



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2021Dec01 RS

Source: California Department of Conservation 2018b, adapted by GEI Consultants, Inc. in 2021

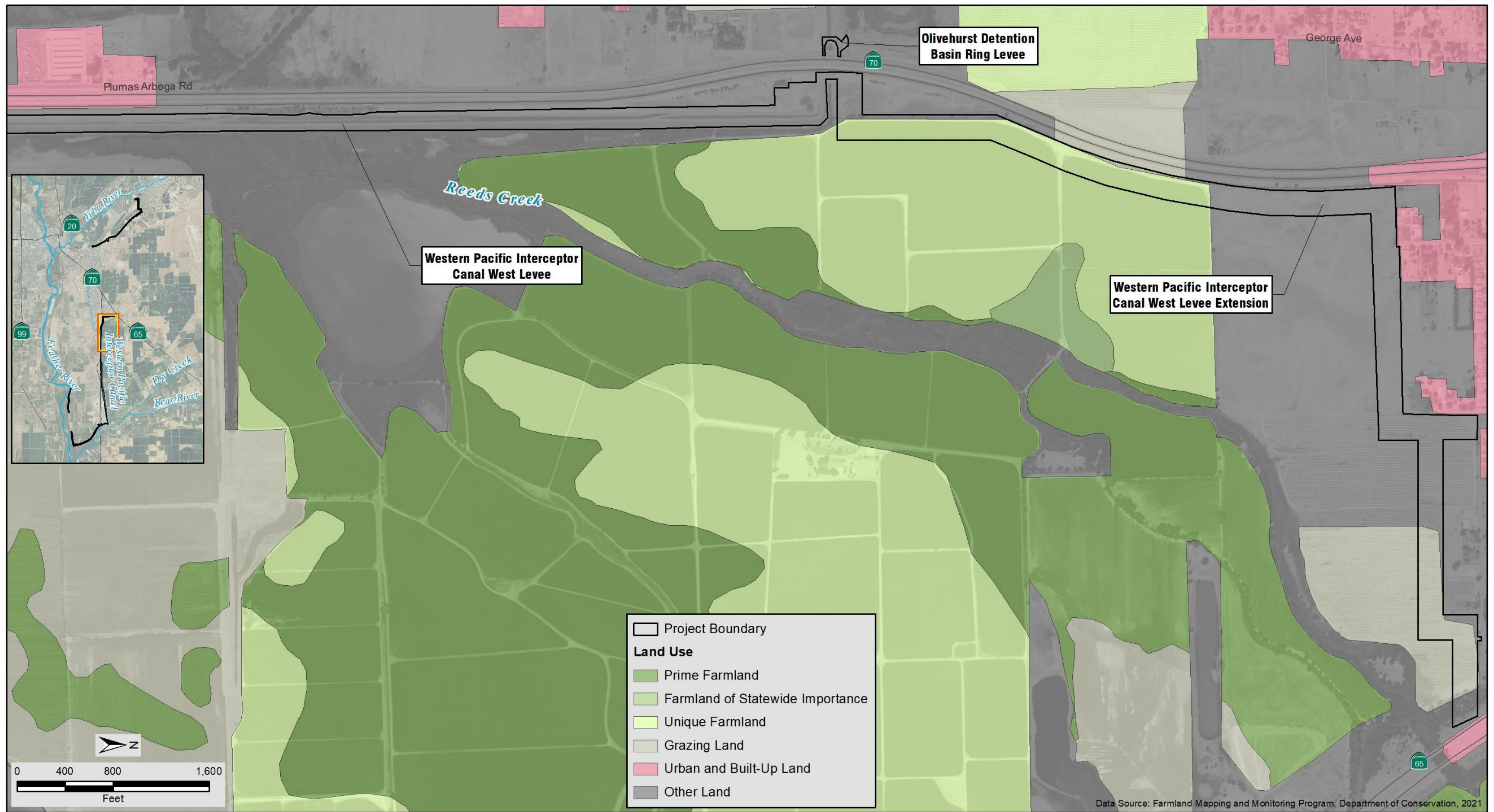
Figure 3.3-2. Farmland Mapping and Monitoring Designations in the Goldfields West Levee and Yuba River South Levee Portions of the Project Site



Source: California Department of Conservation 2018b, adapted by GEI Consultants, Inc. in 2021

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Figure 3.3-3. Farmland Mapping and Monitoring Designations in the Western Pacific Interceptor Canal West Levee Extension Portion of the Project Site



Source: California Department of Conservation 2018b, adapted by GEI Consultants, Inc. in 2021

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3.3.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to agriculture and forestry resources are relevant to the proposed project.

State Plans, Policies, Regulations, and Laws

Aside from efforts to map agricultural lands described above, no State plans, policies, regulations, or laws related to agriculture and forestry resources are relevant to the proposed project.

Regional and Local Plans, Policies, Regulations, and Ordinances

The Yuba County 2030 General Plan includes goals and policies addressing agricultural resources in the Natural Resource Element (Yuba County 2011a). The following goal and policy are relevant to the proposed project.

GOAL NR.3: Farmland. Provide for long-term, vibrant local agricultural operations

- **Policy NR3.4:** New developments adjacent to ongoing agriculture shall incorporate design, construction, and maintenance techniques to minimize conflicts with adjacent agricultural uses, including, but not limited to the use of agricultural buffers.

3.3.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. Implementing the project would have a significant impact on agricultural and forestry resources if it would result in any of the following:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Natural Resources Agency, to nonagricultural use
- Conflict with existing zoning for agricultural use or a Williamson Act contract
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])
- Result in the loss of forest land or conversion of forest land to nonforest use
- Involve other changes in the existing environment that, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to nonforest use

Analysis Methodology

Evaluation of potential project impacts on agricultural and forestry resources is based on a review of zoning designations, FMMP designations, recent aerial photographs, and field survey observations to estimate the amount and type of agricultural and forestry land that would be affected by implementing the proposed project. Please *see* Section 3.11, “Hydrology and Water Quality,” for analysis of potential project-related hydraulic impacts on the project area, including agricultural lands.

Issues Not Discussed Further

Conflict with Agricultural Zoning or Williamson Act Contract. The proposed project would not conflict with agricultural zoning because the Yuba County Development Code states that major utilities, such as Yuba County levee systems, are allowable in areas zoned as Agricultural District. Yuba County does not participate in the Williamson Act program; therefore, no active Williamson Act contracts apply to the project site. These issues are not discussed further.

Conflict with Forest Land Zoning. No land zoned as forest land or timberland occurs on the project site. Therefore, this issue is not discussed further.

Impact Analysis and Mitigation Measures

Impact 3.3-1: Farmland Conversion.

Permanent conversion of land designated as Farmland in the latest available FMMP map (DOC 2018b) to non-agricultural use would include approximately 1 acre of orchard along the Goldfields West Levee and approximately 14 acres of rice along the WPIC West Levee Extension. Orchard has been planted on an additional approximately 3 acres along the Goldfields West Levee and approximately 14 acres along the WPIC West Levee Extension. These orchards have been planted since 2018 and are likely to be mapped as Farmland in the next FMMP update. Therefore, this analysis assumes up to approximately 4 acres of Farmland would be permanently converted by constructing the Goldfields West Levee and up to approximately 28 acres would be converted by constructing the WPIC West Levee Extension. These agricultural lands are along the edge of the orchards and rice fields and would not preclude continuing agricultural activities on the remaining portions of these parcels that are outside the project footprint. In the case of the WPIC West Levee Extension, one or more ramps would be constructed over the levee to maintain access to Farmland south of the levee. Two areas of the orchard parcels along the WPIC West Levee Extension, totaling up to approximately 4 acres, would become isolated on the north side of the levee after it is constructed. Although these areas would be separated from the remainder of the orchard by the new levee, they could continue to be cultivated, in combination with the remaining orchard south of the levee. Therefore, the project would not transect or encroach upon properties outside of the levee footprint such that agricultural parcels would become fragmented, further reduced in size, or irregularly shaped to such a degree that continuing agricultural land uses would be difficult or infeasible.

As mentioned above, Yuba County had 81,838 acres of Farmland, in 2018 (DOC 2018a). The proposed project could permanently convert a total of up to approximately 32 acres of Farmland to non-agricultural use, which represents less than 0.001 percent of Farmland in Yuba County. In the case of the walnut orchard in the Goldfields West Levee area, the narrow corridors of trees along the border of the orchards represents less than 3 percent of the total area of these orchards combined. A conversion of this magnitude would be insubstantial relative to the total acreage of Yuba County Farmland, would represent a very small decrease in the total orchard area on the affected parcels, and would not impact production on the remainder of the parcels. Therefore, orchard conversion in the Goldfields West Levee portion of the project site would be less than significant. However, rice and orchard conversion in the WPIC West Levee Extension portion of the project site would represent a more substantial proportion of the affected cultivated parcels and, in the case of the orchard, two small segments would be orphaned from the remaining orchard on the other side of the levee. Therefore, conversion of agricultural land in the WPIC West Levee Extension area is considered a **significant** impact.

Mitigation Measures: Mitigation Measure 3.3-1 has been identified to address this impact.

Mitigation Measure 3.3-1: Minimize Farmland Conversion to the Extent Practicable and Feasible.

TRLIA and its design and construction contractor(s) will implement the following measures with regard to impacts to Farmland from the WPIC West Levee Extension portions of the project to minimize impacts on these lands:

- When designing the levee improvements, minimize the width of the levee maintenance zone to reduce Farmland removal.
- To the extent available and feasible, establish and/or enhance agricultural use of lands in Yuba County that are not being actively cultivated or are suffering low yields due to infrastructure needs or other challenges at the time WPIC West Levee Extension construction occurs. Agricultural use will be established on uncultivated land at a 1:1 ratio (i.e., 1 acre on which agricultural use is established to 1 acre of Farmland removed from agricultural use). This may be accomplished by leasing unfarmed TRLIA-owned lands to parties who will be responsible for maintaining the lands in agricultural use. Alternatively, or in combination with establishment of agricultural use, agricultural production will be enhanced on existing agricultural land at a 2:1 ratio by providing infrastructure improvements or other enhancements to improve agricultural production.

Timing: Before, during, and after construction of Goldfields West Levee and WPIC West Levee Extension.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measure 3.3-1 would reduce the significant impact associated with the conversion of Important Farmland to the extent feasible,

but assurance cannot be provided that TRLIA will be able to identify adequate opportunities to fully compensate for permanent Farmland loss. Therefore, a net loss of Farmland could still occur, and this impact would be **potentially significant and unavoidable**.

Impact 3.3-2: Forest Land Conversion.

The proposed project would convert up to approximately 1 acre of forest land in the Goldfields West Levee portion of the project site to nonforest and approximately 0.75 acre of forest land in the WPIC West Levee Extension portion of the project site to nonforest. However, the amount of forest land that would be converted represents a very small fraction of the amount of forest land present within the Goldfields and along Reeds Creek (forested areas adjacent to these portions of the project site). Therefore, this impact would be **less than significant**. No mitigation is required.

Residual Significant Impacts

Impacts related to permanent conversion of Farmland to non-agricultural use associated with constructing the WPIC West Levee Extension would be significant. Potentially feasible mitigation is available and would be implemented to minimize and compensate for this loss, but assurance cannot be provided that avoidable Farmland loss would be fully compensated. No additional mitigation measures (or alternatives) are available to avoid or further minimize or compensate this impact. Therefore, net loss of Farmland productivity could occur, and this residual impact would be **potentially significant and unavoidable**.

3.4 Air Quality

This section discusses the existing air quality conditions in the local air basin, describes applicable regulations, analyzes potential impacts of the project related to air quality, and identifies mitigation measures to reduce significant impacts to a less-than-significant level.

3.4.1 Environmental Setting

Air quality in a specific area is affected by the location of air pollutant sources and the quantity of pollutants they emit. Topography and meteorology also influence air quality. Physical features of the landscape and atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, determine the movement and distribution of air pollutants.

The California Air Resources Board (CARB) divides California into regional air basins based on topographic and meteorological features. The proposed project is in Yuba County, which is in the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Sacramento, Yolo, Yuba, Sutter, Colusa, Glenn, Butte, Tehama, and Shasta counties and parts of Solano and Placer counties. The SVAB is bounded on the west and north by the Coast Ranges and on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada. These mountain ranges provide a substantial physical barrier to both locally created pollution and the pollution that prevailing winds transport northward from the Sacramento metropolitan area.

Summer conditions in the SVAB are typically characterized by high temperatures and low humidity, with prevailing winds from the south. Summer temperatures average approximately 90 degrees Fahrenheit (°F) during the day and 50°F at night (FRAQMD 2010). Summer temperatures exceeding 100°F, coupled with clear sky conditions, are favorable for ozone (O₃) formation. Winter conditions in the SVAB are characterized by occasional rainstorms interspersed with stagnant and foggy weather. Winter temperatures average in the low 50s and nighttime temperatures average in the upper 30s (FRAQMD 2010).

The Coast Ranges induce winter storms from the Pacific Ocean to release precipitation on the western slopes, producing a partial rain shadow over the valley. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions that can result in high concentrations of carbon monoxide (CO) and particulate matter (PM). Most precipitation in the SVAB occurs during winter storms. Rainfall occurs mainly from late October to early May, averaging 17.2 inches per year, but the amount varies substantially from year to year. During winter, north winds are frequent, but winds from the south predominate (FRAQMD 2010).

Sensitive Receptors

Sensitive receptors are areas where human populations (especially children, seniors, and sick persons) are located and where there is reasonable expectation of continuous human exposure to air pollutants of concern. Typical sensitive receptors are residential subdivisions, schools, day-care facilities, nursing homes, and hospitals. The nearest sensitive receptors to the project site are residences adjacent to the levee system; the closest residences are approximately 50-100 feet from the Yuba River South Levee.

Criteria Air Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) and CARB as being of concern on both the nationwide and Statewide levels: ozone, CO, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead, and PM, which is divided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM₁₀) and PM equal to or less than 2.5 micrometers in diameter (PM_{2.5}). Because these are the most prevalent air pollutants known to be harmful to human health, and extensive health effects criteria documentation is available for these pollutants, they are commonly referred to as “criteria air pollutants.”

- **Ozone** is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x) in the presence of sunlight. ROG and NO_x are called ozone precursors and are considered critical in ozone formation. NO_x includes various combinations of nitrogen and oxygen, such as nitric oxide and NO₂. Ozone is a principal cause of lung and eye irritation in urban areas. Large ozone concentrations are usually produced only in summer, when atmospheric inversions are greatest, and temperatures are high.
- **Carbon monoxide** is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high CO concentrations are limited to locations within a relatively short distance (300-600 feet) of heavily traveled roadways. Vehicle traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels called “hot spots,” which can be hazardous to human receptors adjacent to the intersections.
- **Nitrogen dioxide** is a product of combustion and is generated in vehicles and stationary sources such as power plants and boilers. It is also formed when ozone reacts with nitric oxide in the atmosphere. NO₂ can cause lung damage. As noted above, NO₂ is part of the NO_x family and is a principal contributor to ozone and smog generation.

- **Sulfur dioxide** is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO₂ is also a product of diesel engine combustion. The health effects of SO₂ include lung disease and breathing problems for asthmatics. SO₂ in the atmosphere contributes to the formation of acid rain.
- **Lead** is a highly toxic metal that may cause a range of human health effects. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. EPA began working to reduce lead emissions soon after its inception, issuing the first reduction standards in 1973. Lead emissions have decreased substantially as a result of the near-elimination of leaded-gasoline use.
- **Particulate matter** is a complex mixture of extremely small particles and liquid droplets. PM is made up of several components: acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Natural PM sources include windblown dust and ocean spray. The size of PM is directly linked to the potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller, because these particles generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Individuals particularly sensitive to fine-particle exposure include older adults, people with heart and lung disease, and children. EPA groups PM into two categories:
 - **PM_{2.5}** consists of fine particles, such as those found in smoke and haze. Sources of fine particles include all types of combustion activities (e.g., motor vehicles, power plants, wood burning) and certain industrial processes. PM_{2.5} is also formed through reactions of gases such as SO₂ and NO_x in the atmosphere. PM_{2.5} is the major cause of reduced visibility (haze) in California.
 - **PM₁₀** encompasses both fine and coarse dust particles; the fine particles are PM_{2.5}. Coarse particles, such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter. Sources of coarse particles include crushing or grinding operations and dust from paved or unpaved roads. Control of PM₁₀ is achieved primarily by controlling dust at construction and industrial sites, cleaning paved roads, and wetting or paving frequently used unpaved roads.

Existing Air Quality Conditions

EPA and CARB have established ambient air quality standards for the six criteria air pollutants described above (CARB 2016). CARB oversees standards for four additional pollutants: hydrogen sulfide, sulfates, vinyl chloride, and visibility-reducing particles. Existing air quality conditions in the project area are characterized by comparing the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for these pollutants with monitoring data collected in the region. **Table 3.4-1** lists the NAAQS and CAAQS.

Table 3.4-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a		National Standards ^b	
		Concentration ^c		Primary ^{c, d}	Secondary ^{c, e}
Ozone (O ₃)	1 hour	0.09 ppm (180 µg/m ³)		–	Same as primary standard
	8 hours	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)	
Respirable particulate matter (PM ₁₀) ^f	24 hours	50 µg/m ³		150 µg/m ³	Same as primary standard
	Annual arithmetic mean	20 µg/m ³		–	
Fine particulate matter (PM _{2.5}) ^f	24 hours	–		35 µg/m ³	Same as primary standard
	Annual arithmetic mean	12 µg/m ³		12 µg/m ³	
Carbon monoxide (CO)	8 hours	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	None
	1 hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)	
	8 hours (Lake Tahoe)	6 ppm (7 mg/m ³)		–	
Nitrogen dioxide (NO ₂) ^g	Annual arithmetic mean	0.030 ppm (57 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as primary standard
	1 hour	0.18 ppm (339 µg/m ³)		100 ppb (188 µg/m ³)	
Sulfur dioxide (SO ₂) ^h	Annual Arithmetic Mean	–		0.030 ppm (for certain areas) ^h	–
	24 hours	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ^h	–
	3 hours	–		–	0.5 ppm (1,300 µg/m ³)
	1 hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³)	–
Lead (Pb) ^{l,j}	30-day average	1.5 µg/m ³		–	Same as primary standard
	Calendar quarter	–		1.5 µg/m ³ (for certain areas) ^j	
	Rolling 3-month average	–		0.15 µg/m ³	
Visibility-reducing particles ^k	8 hours	See footnote j			
Sulfates	24 hours	25 µg/m ³		No national standards	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m ³)			
Vinyl chloride ⁱ	24 hours	0.01 ppm (26 µg/m ³)			

Notes: µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; ppb = parts per billion; ppm = parts per million

^a California standard for ozone, CO (except 8-hour Lake Tahoe), SO₂ (1- and 24-hour), NO₂, and PM₁₀, PM_{2.5}, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equalled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the CCR.

^b National standards (other than ozone, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For PM_{2.5}, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standards.

^c Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

- ^d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ^e National Secondary Standards: The levels of air quality necessary to protect public welfare from any known or anticipated adverse effects of a pollutant.
- ^f On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- ^g To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from 100 ppb to 0.100 ppm.
- ^h On June 2, 2010, a new 1-hour SO₂ standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical of 0.075 ppm.
- ⁱ The California Air Resources Board (CARB) has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ^j The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.
- ^k In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and the “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.
- Source: California Air Resources Board 2016

Attainment Status

Both EPA and CARB designate areas of the State as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act (CAA) and the California CAA, respectively. An “attainment” designation for an area signifies pollutant concentrations did not violate the NAAQS or CAAQS for that pollutant in that area. A “nonattainment” designation indicates a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as identified in the criteria. A “maintenance” designation indicates the area previously had nonattainment status and currently has attainment status for the applicable pollutant; the area must demonstrate continued attainment for a specified number of years before it can be re-designated as an attainment area. An “unclassified” designation signifies data do not support either an attainment or a nonattainment status. **Table 3.4-2** presents the attainment status for pollutants in the Feather River Air Quality Management District (FRAQMD), in which the project site is located.

Yuba County is currently designated as an attainment area for all pollutants based on NAAQS. Yuba County is a nonattainment-transitional area for the 1- and 8-hour ozone based on CAAQS and a nonattainment area for the PM₁₀ CAAQS.

Table 3.4-2. Federal and State Attainment Status of Feather River Air Quality Management District

Pollutant	Designation/Classification National Standards	Designation/Classification California Standards
Ozone – 1-hour	No Federal Standard	Nonattainment-transitional
Ozone – 8-hour	Attainment	Nonattainment-transitional
Inhalable Particulate Matter (PM ₁₀)	Attainment	Nonattainment
Fine Particulate Matter (PM _{2.5})	Attainment	Attainment
Carbon Monoxide	No Designation/Classification	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	No Designation/Classification

Source: Feather River Air Quality Management District 2021

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are defined as air pollutants that may cause or contribute to an increase in mortality or serious illness or may pose a present and potential hazard to human health (California Health and Safety Code [HSC] Section 39655[a]). Toxic air pollutants are called hazardous air pollutants in Federal terms; however, the lists of TACs and hazardous air pollutants are not the same. For example, California recognizes diesel particulate matter (DPM) and environmental tobacco smoke as toxic air pollutants, but the Federal Government does not (40 Code of Federal Regulations [CFR] Part 63 Subpart C).

The health effects associated with TACs vary but generally fall into three main categories: cancer risks, chronic noncancer risks, and acute noncancer risks. Health risks are a measure of the chance that an individual will experience health problems. For construction activities, the primary source of TACs is DPM. CARB estimated the health risk from exposure to DPM at 520 excess cancer cases per million people statewide in 2012. Between 1998 and 2010, ambient DPM concentrations decreased by 68 percent (CARB 2021). Vehicles on roadways near the project site contribute to DPM and other mobile-source TAC emissions. Commercial and industrial enterprises within 10 miles of the project site may contribute to ambient TAC emissions.

Odors

Odors are generally regulated as nuisances and do not typically pose a health risk. Odorous processes or facilities often lead to citizen complaints to local governments, including FRAQMD. Odor impacts are subjective because different people have different sensitivities to

odor. As such, the significance of odor impacts is often determined by the number of complaints received for a source and typically relates to distance from a source. Examples of facilities that could adversely affect area receptors because of odors include wastewater treatment facilities, landfills, petroleum refineries, chemical manufacturing, food processing facilities, dairy lots, and rendering plants. FRAQMD has prepared a screening table to assist with evaluating impacts based on distance from odor sources to receptors. However, this screening tool is not relevant to the proposed project because it applies to projects that include manufacturing and processing facilities, and the proposed project does not include facilities that would generate odors during project operations.

3.4.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

Federal air quality is regulated by EPA. The Federal CAA was created in 1970 and was amended in 1977 and 1990 to regulate air emissions from mobile and stationary sources to protect public health and welfare. The law authorized EPA to establish NAAQS for the six criteria air pollutants. Pursuant to the Federal CAA, states are required to prepare state implementation plans to achieve these standards.

State Plans, Policies, Regulations, and Laws

CARB implements Federal air quality regulations and sets additional regulations at the State level. CARB is responsible for protecting public health, welfare, and ecological resources by reducing air pollutants. CARB's regulations are contained in CCR Title 13, Division 3, and Title 17, Division 3. CARB is responsible for establishing ambient air quality standards and determining if an area is in attainment, nonattainment, or unclassified for each CAAQS.

Regional and Local Plans, Policies, Regulations, and Ordinances

Feather River Air Quality Management District

FRAQMD attains and maintains air quality conditions in Yuba County through a comprehensive program of planning, regulation, enforcement, and promotion of the understanding of air quality issues. FRAQMD develops air quality plans that address Federal and State requirements. The air quality plans include strategies and tactics to be used to attain and maintain acceptable air quality in Yuba County. FRAQMD is also responsible for monitoring air pollution and adopting rules and regulations. The rules and regulations include procedures and requirements to control the emission of pollutants and prevent significant adverse impacts.

FRAQMD, in coordination with the SVAB's other air quality management districts and air pollution control districts in Butte, Colusa, Glenn, Shasta, and Tehama counties, prepared and submitted the 2009 Air Quality Attainment Plan (AQAP). The AQAP was drafted in compliance with the requirements set forth in the California CAA and specifically addresses the nonattainment status for ozone and PM₁₀. The California CAA also requires a triennial assessment of the extent of air quality improvements and emissions reductions achieved using

control measures. As part of the assessment, the AQAP must be reviewed and, if necessary, revised to correct for deficiencies in progress and incorporate new data or projections.

FRAQMD regulations focus primarily on stationary sources, indirect sources, and control measures to minimize air pollutants within FRAQMD's jurisdiction. FRAQMD has also established rules to prevent, reduce, or mitigate the fugitive dust emissions. Specific rules applicable to project construction activities include:

- **Rule 3.0—Visible Emissions.** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour which is as dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- **Rule 3.2—Particulate Matter Concentration.** A person shall not discharge into the atmosphere from any source particulate matter in excess of 0.3 grain per cubic foot of gas at standard conditions.
- **Rule 3.3—Dust and Fumes.** A person shall not discharge in any one hour from any source, dust or fumes that would exceed the amounts shown in Rule 3.3 Allowable Rate of Emission Based on Process Weight Rate table.
- **Rule 3.16—Fugitive Dust Emissions.** A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line, from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land, or solid waste disposal operation.
- **Rule 4.1—Permit Requirements.** Any person operating an article, machine, equipment, or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer. Stationary sources subject to the requirements of Rule 10.3, Federal Operating Permit Program, must also obtain a Title V permit pursuant to the requirements and procedures of that rule.

Yuba County 2030 General Plan

The following goal and policy from the Yuba County 2030 General Plan Public Health and Safety Element related to air quality are relevant to the proposed project (Yuba County 2011):

GOAL HS 6: Construction Emissions. Use construction practices and operational strategies that minimize air pollution.

- **Policy HS 6.1.** New developments shall implement emissions control measures recommended by the Feather River Air Quality Management District for construction, grading, excavation, and demolition, to the maximum extent feasible.

3.4.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The significance criteria used to evaluate project impacts to air quality are based on Appendix G of the State CEQA Guidelines. A significant impact related to air quality would occur if the project would result in any of the following:

- conflict with or obstruct implementation of the applicable air quality plan
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard
- expose sensitive receptors to substantial pollutant concentrations
- result in other emissions (such as those leading to odor) adversely affecting a substantial number of people

As stated in State CEQA Guidelines Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Therefore, according to FRAQMD, a project would have a significant impact on air quality if implementing the project would result in any of the following:

- generate average daily construction-related emissions of ROG or NO_x that exceed 25 pounds per day (lbs/day) or 4.5 tons per year
- generate maximum daily construction-related emissions of PM₁₀ that exceed 80 lbs/day
- generate daily operational emissions of ROG or NO_x that exceed 25 lbs/day or PM₁₀ emissions that exceed 80 lbs/day

Analysis Methodology

Construction-related criteria air pollutant emissions were estimated using the Road Construction Emissions Model, Version 9.0.0, consistent with FRAQMD guidance. Model inputs were based on information such as anticipated construction schedule and phasing, expected duration of activities, equipment types, volumes of material to be hauled, and number of construction workers on-site during each construction phase, as described in Chapter 2, “Project Description.” Operational emissions were not estimated because they would be similar to current conditions.

Impact Analysis

The construction-related criteria air pollutant emissions are presented and compared to FRAQMD significant thresholds in **Table 3.4-3**. Air quality modeling data summarized in this section are provided in **Appendix C, “Air Quality and GHG Emissions Modeling Report.”** Because the construction schedule is not known as this time, a worst-case scenario in which all project components are constructed concurrently and completed in 1 year was analyzed.

Table 3.4-3. Construction-related Criteria Air Pollutant Estimates

Project Component	ROG		NO _x		PM ₁₀ pounds per day *
	tons per year	pounds per day	tons per year	pounds per day	
Goldfields West Levee	1.12	21.17	10.21	192.46	22.51
Yuba River South Levee	0.71	12.64	6.25	116.13	34.81
Feather River East Levee	0.47	10.52	4.0	91.03	104.74
Bear River North/Setback Levee	0.26	14.85	2.46	141.57	32.79
WPIC West Levee and ODB Ring	1.16	21.65	11.38	220.98	104.51
WPIC West Levee Extension	1.18	17.78	12.06	183.15	83.75
Total Emissions	4.9	98.61	46.36	945.32	383.11
<i>FRAQMD Threshold</i>	<i>4.5</i>	<i>25</i>	<i>4.5</i>	<i>25</i>	<i>80</i>
<i>Threshold Exceeded?</i>	Yes	Yes	Yes	Yes	Yes

Notes: * PM₁₀ emissions include both exhaust and fugitive dust emissions; ROG=reactive organic gases; NO_x=oxides of nitrogen; PM₁₀=particulate matter with aerodynamic diameter less than 10 micrometers; FRAQMD=Feather River Air Quality Management District

Source: KD Anderson & Associates, Inc. 2021

Impact 3.4-1: Conflict with Applicable Air Quality Plan during Project Construction.

Consistency with an air quality plan is determined based on whether the project would conflict with or obstruct implementation of the Federal and State air quality plans, which would lead to increases in the frequency or severity of existing air quality violations. Two criteria are used to determine whether the proposed project would conflict with or obstruct implementation of the air quality plans. The first criterion is whether the proposed project is consistent with the projections for population and vehicle miles traveled (VMT) that were used as the basis of the air quality plan. The proposed project would not increase population in the project area and would only temporarily add VMT associated with worker vehicle trips and construction material import and export during the approximately 1- to 3-year construction period. This temporary increase in VMT would not exceed the projections used by FRAQMD (*see* VMT estimates in Section 3.16, “Transportation”).

The second criterion is whether the proposed project would increase the frequency or severity of existing air quality violations, contribute to new violations, or delay the timely attainment of air quality standards. Emissions exceeding FRAQMD thresholds are not accommodated in the air quality plans and would not be consistent with such plans.

Construction emissions are considered temporary, but they have the potential to represent a significant impact on air quality. Construction activities for the project would temporarily generate emissions of criteria air pollutants including ROG, NO_x, and PM₁₀. Emissions of the ozone precursors ROG and NO_x are generated primarily by on-road mobile sources (i.e., delivery vehicles, construction worker vehicles) and off-road construction equipment. Fugitive PM dust is one of the pollutants of greatest concern with respect to construction activities. Construction-related emissions of fugitive PM dust can vary greatly depending on the level of activity, the

specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance. Ground-disturbing activities and hauling along unpaved construction roads would be the primary sources of fugitive PM dust emissions from construction activities. Movement of off-road construction equipment and work trucks on unpaved roads/shoulders can also generate emissions of fugitive PM dust.

As shown in **Table 3.4-3**, ROG, NO_x, and PM₁₀ emissions generated during construction would exceed FRAQMD's threshold of significance under the assumption that all project components will be constructed, and all construction will occur in 1 calendar year. If construction is spread over more than 1 calendar year and/or not all of the proposed components are constructed, the ROG emissions thresholds would likely not be exceeded. However, NO_x and PM₁₀ emissions thresholds are likely to be exceeded under any construction scenario. Due to construction-related emissions exceeding FRAQMD's established thresholds of significance, this impact would be **significant**.

Mitigation Measures: Mitigation Measures 3.4-1a through 3.4-1c have been identified to address this impact.

Mitigation Measure 3.4-1a: Implement Best Management Practices to Reduce Emissions during Construction.

TRLIA and its construction contractors will implement the following measures consistent with established FRAQMD Construction Phase Mitigation Measures (FRAQMD 2016):

- Develop and submit a fugitive dust control plan to minimize fugitive dust emissions during project construction to FRAQMD for approval.
- Ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
- Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators to the extent feasible and practicable.
- Suspend all project grading operations when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Water or treat work areas with dust suppressants as necessary to prevent fugitive dust violations. Incorporate the use of FRAQMD-approved non-toxic soil stabilizers (e.g., as indicated in the most recent California Stormwater Quality Association Construction BMP Handbook) according to manufacturer's specifications to all inactive construction areas.
- Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. Travel time to water sources should be considered and additional trucks used if needed.

- Apply FRAQMD-approved chemical soil stabilizers (e.g., as indicated in the most recent California Stormwater Quality Association Construction BMP Handbook) 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.
- Cover onsite dirt piles or other stockpiled material when not in active use.
- Minimize the free fall distance and fugitive dust emissions associated with all transfer processes involving a free fall of soil or other PM.
- Install wheel washers where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment will be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
- Frequently sweep paved streets (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.
- Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering.

Timing: Throughout all construction activities.

Responsibility: TRLIA and its construction contractors.

Mitigation Measure 3.4-1b: Develop Equipment Inventory that Reduces Exhaust Emissions and Document Equipment Use and Worker Vehicle Trips during Construction.

TRLIA and its construction contractors will implement the following measures to reduce, track, and calculate construction-related project emissions, consistent with established FRAQMD Construction Phase Mitigation Measures (FRAQMD 2016).

- Before construction activities begin, TRLIA and its construction contractors will compile a comprehensive inventory list (i.e., make, model, engine year, horsepower [hp], emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 hp and greater) that will be used an aggregate of 40 or more hours during construction and provide the inventory to FRAQMD for approval. To the extent feasible, this equipment inventory will demonstrate that the heavy-duty off-road equipment to be used during construction (including owned, leased and subcontractor equipment) will achieve a project-wide fleet average of 5 percent ROG reduction,

20 percent NOx reduction, and 45 percent PM reduction compared to the most recent CARB fleet average at time of construction. Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB-approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), aftertreatment products, and/or other options as they become available.

- Data regarding construction activities will be collected and reported to FRAQMD on a monthly basis and used to calculate project emissions after construction activities are complete. Data collected during project construction will include the following items:
 - Construction equipment
 - Number of pieces of each equipment type
 - Model year, engine horsepower and tier, and hours of operation for each equipment type
 - Haul trucks (heavy-duty trucks)
 - Number of heavy-duty haul truck trips
 - On-road and off-road trip distance for haul truck trips
 - Construction workers
 - Number of construction workers per day
 - Total volume (cubic yards) of cut/fill

Timing: Before and during construction activities.

Responsibility: TRLIA and its construction contractors.

Mitigation Measure 3.4-1c: Calculate Construction Emissions and Contribute to FRAQMD Off-Site Mitigation Program

TRLIA will pay a deposit to FRAQMD, to be determined at the time the project is approved, for contribution to the FRAQMD Off-site Mitigation Fund. This deposit will be held by FRAQMD and applied toward the final off-site mitigation amount to be paid after project construction is complete.

Total construction emissions will be calculated at the end of construction activities. Using these calculations, TRLIA will make a final payment to the FRAQMD Off-Site Mitigation Fund to offset project emissions that exceed FRAQMD thresholds.

Timing: Before construction activities begin and after construction activities are complete.

Responsibility: TRLIA.

Significance after Mitigation: Implementing Mitigation Measures 3.4-1a and 3.4-1b would reduce construction-related emissions by implementing control measures during construction and using equipment that reduces emissions to the extent possible. Emission reductions are not estimated with implementation of Mitigation Measure 3.4-1a and 3.4-1b because it is uncertain to what extent these measures can be implemented. However, based on previous TRLIA projects, implementing measures related to PM₁₀ reduction are expected to reduce PM₁₀ emissions below FRAQMD thresholds. Implementing Mitigation Measure 3.5-1c would compensate for NO_x and ROG emissions that are expected to exceed FRAQMD thresholds after implementation of Mitigation Measures 3.4-1a and 3.4-1b. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.4-2: Conflict with Applicable Air Quality Plan during Project Operations and Maintenance.

Following construction of the proposed project, minimal emissions associated with project O&M activities would occur. Regular O&M activities for existing levees and associated structures would continue as under current conditions and would be expanded to include new levee segments and associated new structures. No new O&M activities are proposed. The increase in extent of O&M activities to include the new levee segments would represent a very small proportion of the overall O&M activities and would generate minimal additional air quality emissions that would not exceed FRAQMD thresholds. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Impact 3.4-3: Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant from Construction Activities.

Under the NAAQS, Yuba County is designated as attainment for all pollutants. Under the CAAQS, Yuba County is designated as nonattainment for PM₁₀, nonattainment-transitional for 1- and 8-hour ozone, and attainment or unclassified for all other State standards. FRAQMD's nonattainment/nonattainment-transitional status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its nature, air pollution is largely a cumulative impact. No single project by itself is sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. FRAQMD developed regional air quality thresholds as allowable project-level emissions limits to enable the region to attain and maintain ambient air quality standards. Therefore, if a project exceeds its identified project-level significance thresholds, the project's cumulative impact would be cumulatively considerable.

As shown in **Table 3.4-3** and discussed under Impact 3.4-1, construction-related ROG, NO_x, and PM₁₀ emissions would exceed FRAQMD's threshold of significance. As a result, the project would result in cumulatively considerable emissions of criteria air pollutants with

nonattainment/nonattainment-transitional status in Yuba County. Therefore, this impact would be **significant**.

Mitigation Measures: Mitigation Measures 3.4-1a through 3.4-1c would address this impact.

Mitigation Measure 3.4-1a: Implement FRAQMD Construction Phase Mitigation Measures.

Please *refer to* Mitigation Measure 3.4-1a in Impact 3.4-1 above for full text of this mitigation measure.

Mitigation Measure 3.4-1b: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions.

Please *refer to* Mitigation Measure 3.4-1b in Impact 3.4-1 above for full text of this mitigation measure.

Mitigation Measure 3.4-1c: Contribute to FRAQMD Off-Site Mitigation Program.

Please *refer to* Mitigation Measure 3.4-c1 in Impact 3.4-1 above for full text of this mitigation measure.

Significance after Mitigation: Mitigation Measures 3.4-1a and 3.4-1b would reduce construction-related emissions by implementing control measures during construction and using equipment that reduces NO_x and PM₁₀ emissions to the extent possible. Implementing Mitigation Measure 3.5-1c would compensate for emissions that exceed FRAQMD thresholds. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.4-4: Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant from Operations.

As discussed in Impact 3.4-2 above, O&M activities following construction would be similar to current conditions. The increase in extent of O&M activities to include the new levee segments would represent a very small proportion of the overall O&M activities and would generate minimal additional air quality emissions. Therefore, implementing O&M activities would not contribute to an existing or projected air quality violation. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Impact 3.4-5: Expose Sensitive Receptors to Substantial Pollutant Concentrations.

The greatest potential for TAC emissions would be diesel PM emissions from heavy-duty construction equipment and fugitive dust from construction activities. The dose to which receptors are exposed is the primary factor used to determine health risk and is a function of the concentration and duration of exposure. According to the State Office of Environmental Health Hazard Assessment, health-risk assessments (HRA) that determine the health risks associated with exposure of residential receptors to TAC emissions should be based on a 70-year exposure

period (OEHHA 2003). However, HRAs should be limited to the period/duration of activities associated with the emissions activity. Construction emission from the project would only be generated for an approximately 1- to 3-year period.

However, due to the close proximity of sensitive receptors to the project site, the dose (i.e., concentration levels) to which nearby receptors would be exposed would be significant. CARB's Air Quality and Land Use Handbook states that PM levels drop by 70 percent at a distance of 500 feet from a roadway (CARB 2005). However, residences are located within as little as 50 to 100 feet. Therefore, this impact would be **potentially significant**.

Mitigation Measures: Mitigation Measures 3.4-1a and 3.4-1b would address this impact.

Mitigation Measure 3.4-1a: Implement FRAQMD Construction Phase Mitigation Measures.

Please *refer to* Mitigation Measure 3.4-1a in Impact 3.4-1 above for full text of this mitigation measure.

Mitigation Measure 3.4-1b: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions.

Please *refer to* Mitigation Measure 3.4-1b in Impact 3.4-1 above for full text of this mitigation measure.

Significance after Mitigation: Mitigation Measures 3.4-1a and 3.4-1b would reduce construction-related emissions by implementing control measures during construction and using equipment that reduces diesel PM₁₀ emissions to the extent possible. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.4-6: Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People.

During construction, the project would generate odor from the use of diesel fuels over the 1- to 3-year construction period. These odors would affect the relatively small number of people that would be in close proximity to project construction. These construction-related odors would be temporary and short-term, and the project would not create any permanent emissions that would adversely affect a substantial number of people. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

Mitigation measures would be implemented to reduce construction-related pollutant emissions, including ROG, NO_x, and PM₁₀, and TRLIA would participate in the FRAQMD Off-Site Mitigation Fund to compensate for construction emissions that exceed the thresholds. Therefore, there would be no residual significant impacts associated with air quality.

3.5 Biological Resources

This section discusses the existing setting for aquatic and terrestrial biological resources in the project vicinity, summarizes applicable regulations, analyzes potential impacts of the project related to biological resources, and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level.

3.5.1 Environmental Setting

The discussion presented in this section is based on information from a variety of sources that address biological resources on the project vicinity and in the larger project vicinity. Several biological resource databases were queried, including DFW's California Natural Diversity Database (CNDDDB) (DFW 2021a) and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2021). List of resources under U.S. Fish and Wildlife Service (USFWS) jurisdiction that could occur in the project vicinity were obtained from the Information for Planning and Conservation (IPaC) website (USFWS 2021). Additional sources of information on individual plant and wildlife species in the project area include biological surveys and monitoring conducted for previous TRLIA projects and observations made during field surveys of the majority of the project site conducted by GEI biologists in June, July, and November 2021. The primary purpose of the GEI field surveys were to update information gathered during previous surveys and evaluate potential for the proposed project to impact biological resources, based on current conditions.

Land Cover Types

Table 3.5-1 lists the land cover types and their acreages on the project site; each cover type is described below. These cover types were determined based primarily on observations made during GEI field surveys conducted in 2021. A small proportion of the project site, including the Goldfields West Levee and WPIC West Levee Extension areas, could not be directly accessed during the field surveys; land cover types in these areas were categorized based on views from adjacent publicly accessible land, drone footage, and Google EarthTM aerial imagery. Land cover types were classified based primarily on the descriptions provided by DFW's California Wildlife Habitat Relationship types (DFW 2014).

The project site is primarily limited to the existing levees and adjacent maintenance zones, which are comprised of the aggregate base levee crowns, regularly maintained grassland vegetation on the levee slopes, and regularly maintained grassland and dirt road in the maintenance zones.

Figures 3.5-1 and **3.5-2** show the Goldfields West Levee and WPIC West Levee Extension portions of the project site, respectively. These are the primary portions of the project site where new levee segments would be constructed, and habitat conversion would occur.

Table 3.5-1. Habitat and Land Cover Types on the Project Site

Habitat/Land Cover Type	Acres on Project Site
Nonnative Annual Grassland	256
Developed	67
Agriculture (orchard)	22
Agriculture (rice)	11
Mixed Riparian	10
Mining Pond	3
Seasonal Wetland	2
Canal	1
Agricultural Ditch	< 0.5
Riverine	< 0.5

Source: Data collected by GEI in 2021

Nonnative Annual Grassland

Annual grassland habitat occurs primarily along the existing levees and associated maintenance zones. Common species observed on and adjacent to the levees include wild oat (*Avena fatua*), Bermuda grass (*Cynodon dactylon*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*) and wall barley (*Hordeum murinum*). Infrequent native stands of blue wildrye (*Elymus glaucus*) were observed along portions of landside levee slopes. Common forbs observed throughout this habitat include broadleaf filaree (*Erodium botrys*), wild radish (*Raphanus sativa*), English plantain (*Plantago lanceolata*), milk thistle (*Silybum marinum*), yellow star-thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*).

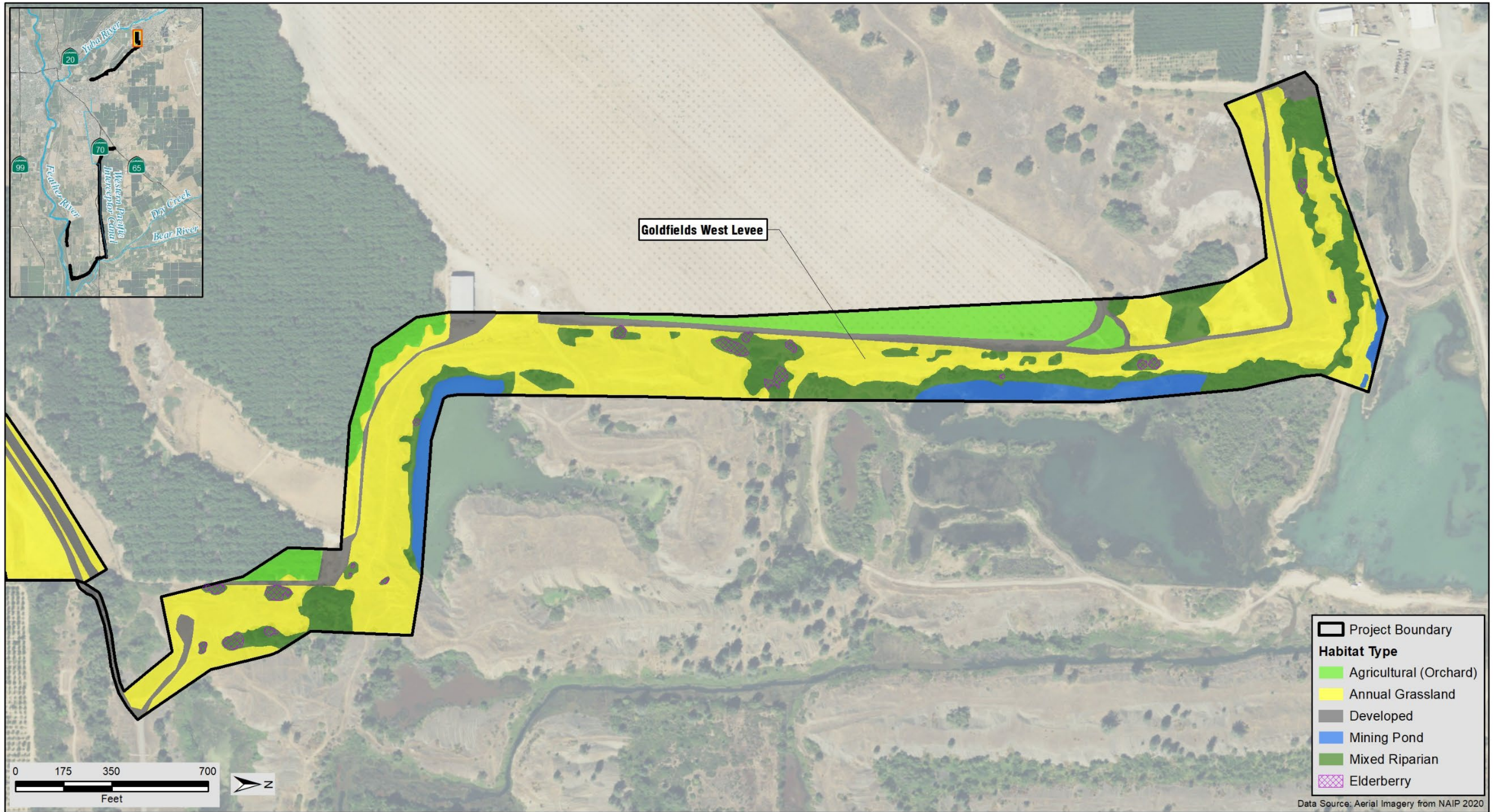
Grassland also occurs on mining tailings in the Goldfields West Levee portion of the project site. This area was not surveyed due to access constraints but is likely similar to other areas in the Goldfields that have been surveyed for past TRLIA projects. These areas often support relatively poor soil development and sometimes sparse vegetation cover of grasses and forbs, such as ripgut brome, six-week rattail grass (*Festuca myuros*), little quaking grass (*Briza minor*), naked buckwheat (*Eriogonum nudum*), and Spanish clover (*Acmispon americanus*).

The northwest portion of WPIC West Levee Extension area supports annual grassland with interspersed seasonal wetlands discussed in their own category below. This grassland area had been recently disked when it was observed from adjacent roadway in July 2021. It does not appear to have been cultivated, but aerial images indicate it is sometimes grazed.

Developed

Developed portions of the project site are characterized by open, bare areas with either soil or hardscaped materials subject to recent or regular disturbance. These areas have little to no vegetation and primarily include the levee crown and maintenance areas. Where vegetation occurs, it is typically sparsely distributed non-native plants such as bindweed (*Convolvulus arvensis*) and turkey mullein (*Croton setiger*).

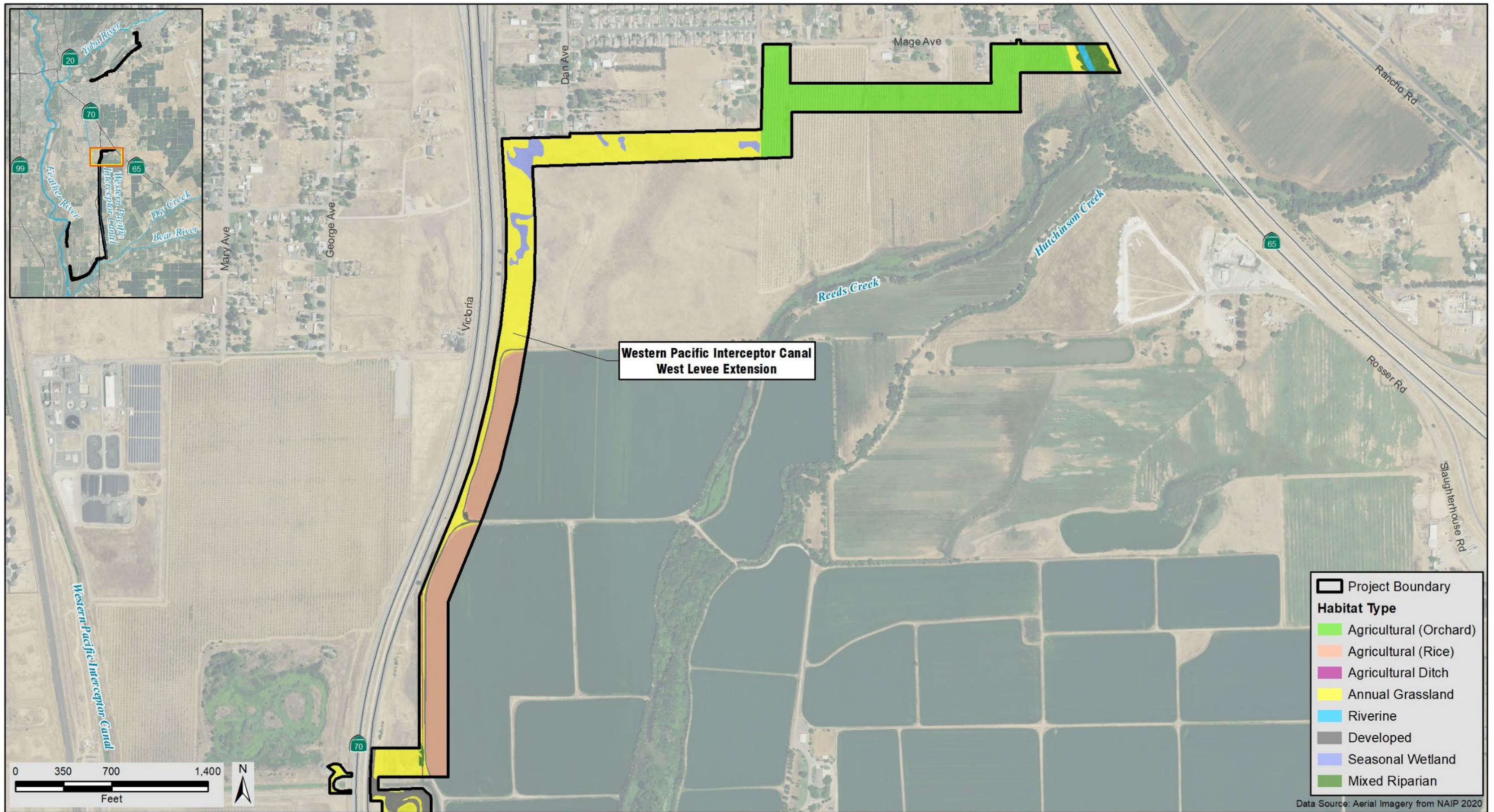
Figure 3.5-1. Land Cover Types in the Goldfields West Levee Portion of the Project Site



Source: Land cover types mapped by GEI Consultant's Inc. in 2021

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Figure 3.5-2. Land Cover Types in the Western Pacific Interceptor Canal West Levee Extension Portion of the Project Site



Source: Land cover types mapped by GEI Consultant's Inc. in 2021

Agriculture

The project site includes orchards and rice fields. Walnut orchards in the Goldfields West Levee portion of the project site, and a smaller nut/stone fruit crop occurs in the northeast portion of the WPIC West Levee Extension area. The southern portion of the WPIC West Levee Extension area is rice.

Mixed Riparian

Mixed riparian habitat on the project site includes scrub and woodland, primarily in the Goldfields West Levee portion of the site; a small riparian area is also present at the east end of the WPIC West Levee Extension area. Neither of these areas was surveyed, due to access restrictions, but based on areas of similar habitat in the vicinity and review of aerial imagery, the overstory in these areas includes Gooding's black willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), and valley oak (*Quercus lobata*). Large clumps of elderberry (*Sambucus* spp.) shrubs also occur extensively in the Goldfields West Levee area. The shrub layer under the tree canopy appears to be sparse to intermittent and dominated by elderberry, Himalayan blackberry (*Rubus armeniacus*), and/or California blackberry (*Rubus ursinus*). Because shrub cover is patchy and intermittent, it was not mapped separately from woodland, although clearly identifiable elderberry shrubs (due to obvious flower clusters) were identified (refer to **Figure 3.5-1**).

Mining Pond

The Goldfields West Levee portion of the project site includes portions of several mining ponds. These ponds are in topographic low areas between the gravel/cobble mining tailing hills and are a result of past mining and reclamation activities.

Seasonal Wetland

As indicated above in the nonnative annual grassland description, seasonal wetlands occur in the northwest corner of the WPIC West Levee Extension area, based on recent and historic Google Earth™ aerial imagery. These areas resemble vernal pools or a vernal pool complex connecting swale and pool features in an overall annual grassland habitat. Field surveys would be required to confirm if this portion of the project site supports vernal pools or more broadly categorized seasonal wetlands.

Canal and Agricultural Ditch

A canal and smaller agricultural ditch occur adjacent to rice fields in the southeastern portion of the WPIC West Levee Extension area. The canal is associated with flows from the adjacent Reeds Creek, an intermittent to low-flow perennial drainage, and from the adjacent agricultural rice fields. Emergent marsh vegetation occurs along portions of these features. The project site also very slightly overlaps the WPIC channel in areas where channel sloughing has occurred.

Riverine

A small area (approximately 0.25 acre) of riverine habitat that supports submerged aquatic and/or emergent marsh vegetation occurs at the eastern end of the WPIC West Levee Extension portion of the project site. This area likely receives local runoff from north of the project site and seasonal inundation from Reeds Creek and the adjacent Hutchinson Creek, south of the site.

Wildlife Habitat

Wildlife populations in the project area have been substantially affected by habitat loss and disturbance associated with past and ongoing human activities, including construction and maintenance of the levee system, adjacent housing development, agricultural production, and mining. As a result, the high abundance and wide diversity of native species formerly associated with the local waterways have been greatly reduced. Wildlife habitat is of relatively poor quality on most of the project site, which is dominated by the existing levee and maintenance zone. Wildlife use in these portions of the site is limited to common birds, reptiles, and mammals that occur in disturbed environments.

The highest quality wildlife habitat on the project site occurs in the Goldfields West Levee and WPIC West Levee portions. The Goldfields West Levee portion includes small patches of woodland and scrub vegetation that support a wider variety of wildlife species and likely provide nesting habitat for common birds. Mining ponds in this area may also provide habitat for some aquatic species. Similarly, woodland and scrub vegetation and aquatic habitat along the WPIC West Levee and at the east end of the WPIC West Levee Extension area and support higher wildlife diversity and provide higher quality habitat than the existing levee corridor. In addition, rice fields at the south end of the WPIC West Levee Extension provide habitat for aquatic species and waterbirds.

The Bear River Setback Levee and Feather River East Levee portions of the project site are limited to the existing levee and maintenance corridor but are bordered by large patches of high-quality remnant and restored riparian habitat used by a wide variety of wildlife species, including special-status species discussed further below. Numerous native bird species are known to nest in these areas, including raptors, woodpeckers, flycatchers, and others, and large mammals such as black-tailed deer (*Odocoileus hemionus columbianus*) and coyote (*Canis latrans*) are also likely to occur.

Special-status Species

Plants and animals addressed as special-status species in this section include taxa (distinct taxonomic categories or groups) that fall into any of the following categories:

- Taxa officially listed, candidates for listing, or proposed for listing by the Federal government or the State of California as endangered, threatened, or rare
- Taxa that meet the criteria for listing

- Wildlife identified by DFW as species of special concern and plant taxa considered by DFW to be “rare, threatened, or endangered in California”
- Species listed as Fully Protected under the California Fish and Game Code (FGC)
- Species afforded protection under local or regional planning documents

Plant taxa are assigned by DFW to one of the following six California Rare Plant Ranks (CRPRs):

- CRPR 1A—Plants presumed to be extinct in California
- CRPR 1B—Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2A—Plants presumed extirpated in California, but are more common elsewhere
- CRPR 2B—Plants rare, threatened, or endangered in California but more common elsewhere
- CRPR 3—Plants about which more information is needed (a review list)
- CRPR 4—Plants of limited distribution (a watch list)

All plants with a CRPR are considered “special plants” by DFW, but this is a broad term used to refer to all plant taxa inventoried in the CNDDDB, regardless of their legal or protection status. Plants ranked as CRPR 1 or 2 may qualify as endangered, rare, or threatened species within the definition presented in Section 15380 of the State CEQA Guidelines. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to State CEQA Guidelines Section 15380.

DFW applies the term “California species of special concern” to wildlife species that are not listed under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA) but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers and are subject to current known threats to their persistence.

The CNDDDB and CNPS inventory queries included fourteen U.S. Geological Survey (USGS) Fresno North 7.5-minute quadrangles on which the project is located and bordering the project site. CNDDDB occurrences of special-status plants and animals within 3 miles of the project site are shown in **Figures 3.5-3** and **3.5-4**, respectively. Results of the CNDDDB and CNPS inventory queries and the IPaC list are provided in **Appendix D, “Special-status Species Lists.”**

Special-status Plants

Table 3.5-2 provides information on special-status plant species for which potentially suitable habitat was determined to be present on or immediately adjacent to the project site during the 2021 field surveys or surveys conducted for previous TRLIA projects; these species are discussed below. Other special-status plants included in the CNDDDB or CNPS search results or on the IPaC list were eliminated from consideration because the project site is outside their extant range and/or does not provide suitable habitat; these species are not discussed further. For

example, local occurrences of the four species shown in **Figure 3.5-3** but not discussed below are from more than 100 years ago and are known or presumed to have been extirpated.

Table 3.5-2. Special-Status Plants with Potentially Suitable Habitat on or Immediately Adjacent to the Project Site

Species	Status ¹		Habitat Requirements	Potential for Occurrence in the Project Area
	Federal	State CRPR		
Plants				
Dwarf downingia <i>Downingia pusilla</i>	–	–	2B.2 Vernal pools and other mesic sites in valley and foothill grassland	Very low—could occur in WPIC West Levee Extension area, if suitable vernal pools are present; known to occur at Beale Air Force Base, approximately 6 miles northwest
woolly rose-mallow <i>Hibiscus lasiocarpus</i> <i>var. occidentalis</i>	–	–	1B.2 Freshwater marshes and swamps, generally on wet riverbanks and low slough islands; also recorded in riprap on levee slopes	Low—could occur in aquatic habitats in the mining ponds, WPIC, and Reeds Creek side channel, in the existing WPIC West Levee and levee extension area and Goldfields West Levee portions of the project site.
Ahart’s dwarf rush <i>Juncus leiospermus</i> <i>var. ahartii</i>	–	–	1B.2 Vernal pools and swales in areas with low cover of competing vegetation	Low—could occur in WPIC West Levee Extension area, if suitable vernal pools are present; nearest known occurrence is approximately 15 miles north
Greene’s legenera <i>Legenera limosa</i>	–	–	1B.1 Relatively deep and wet vernal pools	Low—could occur in WPIC West Levee Extension area, if suitable vernal pools are present; known to occur at Beale Air Force Base, approximately 6 miles northwest
Baker’s navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	–	–	1B.1 Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	Low—WPIC West Levee Extension only. Could occur in fallow field if vernal pools are present.
Sanford’s arrowhead <i>Sagittaria sanfordii</i>	–	–	1B.2 Shallow freshwater marshes and swamps.	Low—could occur in aquatic habitats in the mining ponds, WPIC, and Reeds Creek side channel, in the existing WPIC West Levee and levee extension area and Goldfields West Levee portions of the project site.

Notes:

¹ Status Definitions

– = No status

California Rare Plant Ranks

1B = Rare, threatened, or endangered in California and elsewhere

2B = Rare, threatened, or endangered in California but more common elsewhere

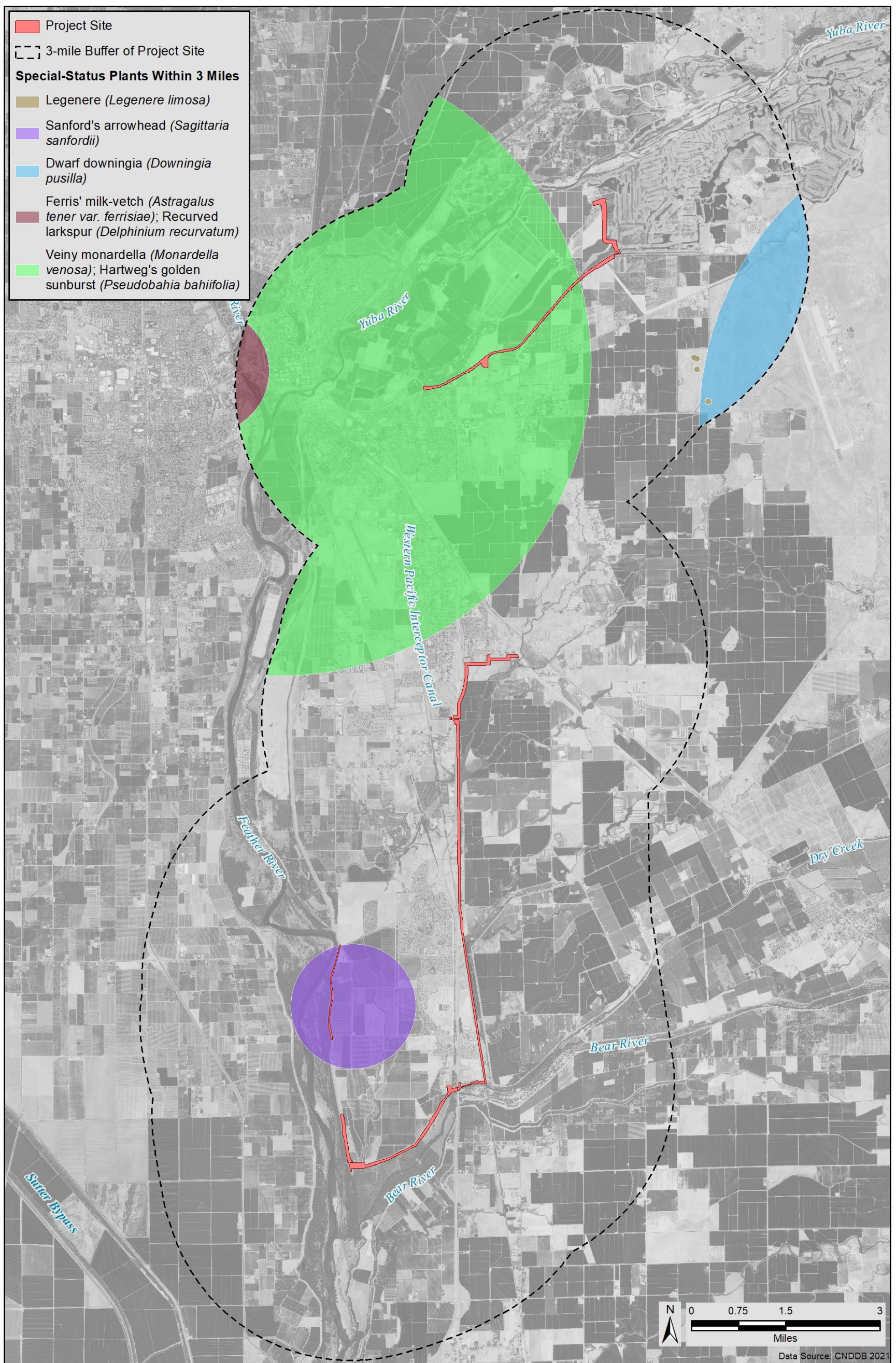
California Rare Plant Rank Extensions

.1 = Seriously threatened in California

.2 = Moderately threatened in California

Sources: California Department of Fish and Wildlife 2021a, California Native Plant Society 2021, GEI Consultants, Inc. observations made in 2021

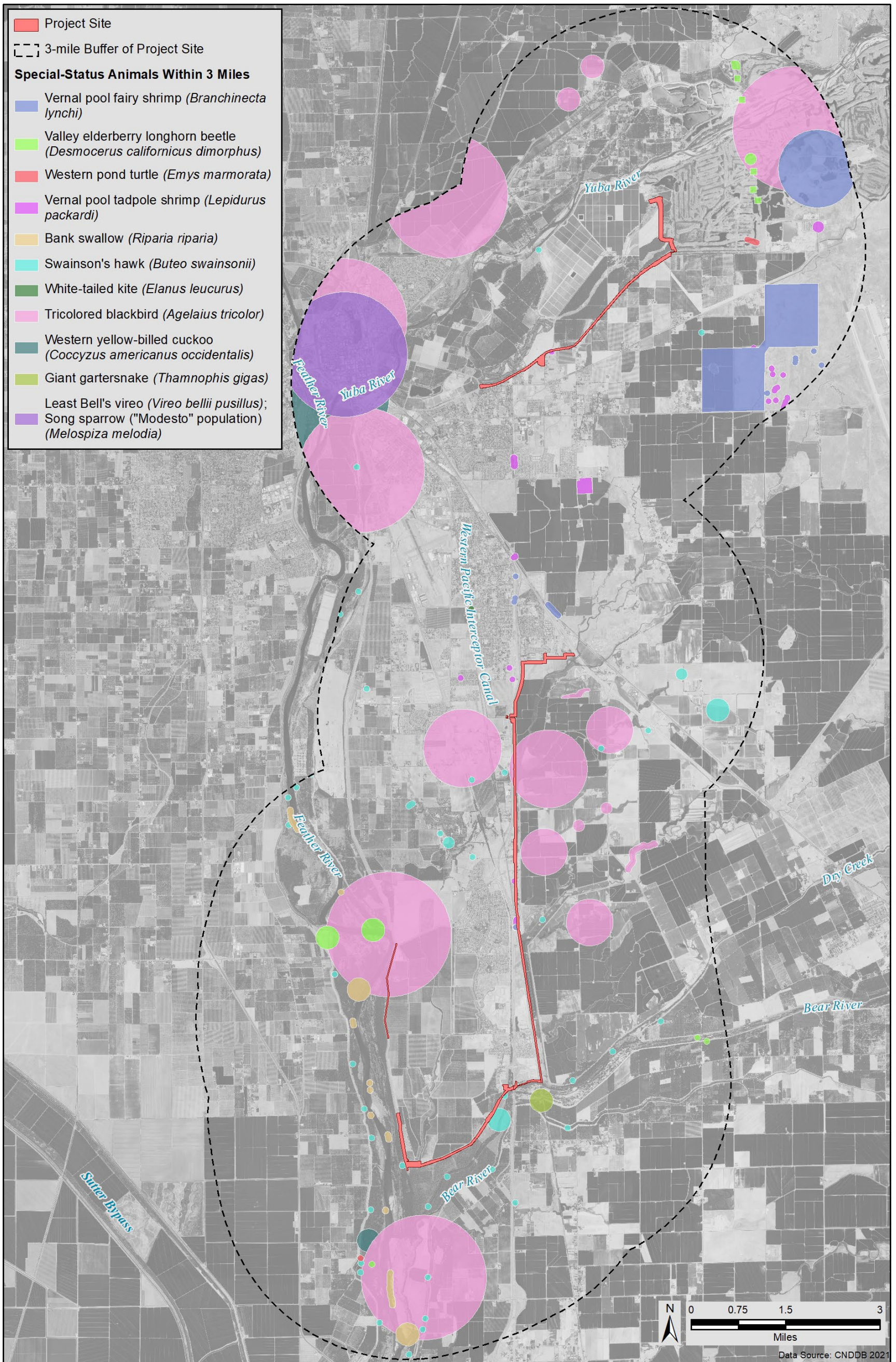
Figure 3.5-3. California Natural Diversity Database Occurrences of Special-status Plants within 3 Miles of the Project Site



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Source: California Department of Fish and Wildlife 2021a, adapted by GEI Consultants, Inc. in 2021

Figure 3.5-4. California Natural Diversity Database Occurrences of Special-status Animals within 3 Miles of the Project Site



Source: California Department of Fish and Wildlife 2021a, adapted by GEI Consultants, Inc. in 2021

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Dwarf downingia (*Downingia pusilla*) is a CRPR 2B.2 species: rare, threatened, or endangered in California but more common elsewhere and moderately threatened in California. It is an annual herb that blooms in March through May. Dwarf downingia grows in vernal pools in valley and foothill grasslands of the Sacramento Valley, northern San Joaquin Valley, and northern San Francisco Bay Area. Its potential to occur on the project site is very low, due to poor habitat quality, and is limited to the recently disked grassland in the WPIC West Levee Extension portion of the project site. Although this area had been recently disked when this portion of the project site was viewed from adjacent public areas in July 2021, Google Earth™ imagery indicates vernal pools occur on this parcel. The nearest known occurrence of dwarf downingia to this area is at Beale Air Force Base (AFB), approximately 6 miles to the northeast, and is one of only two occurrences in Yuba County (DFW 2021a).

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is a CRPR 1B.2 species: rare, threatened, or endangered in California and elsewhere and moderately threatened in California. It is an annual herb that blooms from March to May. This dwarf rush grows in vernal pools, in valley and foothill grasslands, typically on gopher turnings along margins of pools or swales. It is known only from approximately 10 extant occurrences in six Sacramento Valley counties, including Yuba County (CNPS 2021). Its potential to occur on the project site is very low and limited to the WPIC West Levee Extension portion. The nearest documented occurrence of Ahart's dwarf rush is from approximately 15 miles north and is the only CNDDDB occurrence in Yuba County (DFW 2021a).

Legenere (*Legenere limosa*) is a CRPR 1B.1 species: rare, threatened, or endangered in California and elsewhere and seriously threatened in California. It is an annual herb that blooms from April through June. Legenere grows in a variety of wetland habitats, including vernal pools and marshes, artificial ponds, and floodplains of intermittent streams in grassland, woodland, and hardwood forest. The current distribution of legenere is primarily the Sacramento Valley; nearly half of the presumed extant occurrences are in Sacramento County. Its potential to occur on the project site is very low and limited to the WPIC West Levee Extension portion. The nearest known occurrence of legenere is from vernal pools at Beale AFB and is the only CNDDDB occurrence in Yuba County (DFW 2021a).

Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*) is a CRPR 1B.2 species. It is a perennial rhizomatous herb that blooms from June through September. This taxon occurs in freshwater marshes and swamps, generally on wet riverbanks and low slough islands but has also been documented in levee riprap. Woolly rose-mallow occurs throughout much of the Sacramento Valley, from Chico to Stockton. Potential for it to occur on the project site is low and limited to the mining ponds, WPIC, and the Reeds Creek side channel at the east end of the WPIC West Levee Extension area. The nearest known occurrences of are from the Sutter Bypass, approximately 3 miles west of the project site; no occurrences are known from Yuba County (DFW 2021a, CNPS 2021).

Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*) is a CRPR 1B.1 species. It is an annual herb that blooms from April through July. Baker's navarretia grows in vernal pools, meadows, and seeps surrounded by grassland, woodland, and coniferous forest. It has a relatively broad distribution in northern California, primarily the Sacramento Valley and Coast Range. The nearest known occurrence of Baker's navarretia is from the east side of the Sutter Buttes, approximately 12 miles from the project site; there are no known occurrences in Yuba County (DFW 2021a, CNPS 2021).

Sanford's arrowhead (*Sagittaria sanfordii*) is a CRPR 1B.2 species. It is a perennial aquatic herb that blooms from May to October. Sanford's arrowhead is generally found in standing or slow-moving, shallow freshwater marsh habitat in ponds, ditches, and sloughs. The species historically occurred in a number of counties throughout California but has been extirpated from many sites in the Central Valley. Potential for Sanford's arrowhead to occur on the project site is low and is limited to the mining ponds, WPIC, and the Reeds Creek side channel at the east end of the WPIC West Levee Extension area. The only known Yuba County occurrence is a 1955 record from the Feather River East Levee portion of the project site, but the exact location and habitat characteristics are unknown (DFW 2021a).

Special-status Wildlife

Table 3.5-3 provides information on special-status aquatic and terrestrial wildlife taxa for which potentially suitable habitat was determined to be present on or adjacent to the project site during the 2021 field surveys or surveys conducted for previous TRLIA projects. Only species with at least potential to occur are discussed further below.

Invertebrates

Four special-status invertebrates have moderate potential to occur in the project area: vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), monarch butterfly (*Danaus plexippus*), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

Vernal pool fairy shrimp and vernal pool tadpole shrimp are Federally listed as threatened and occur in vernal pool habitats in the Central Valley and several disjunct populations elsewhere. Both species can occur in a variety of vernal pool sizes, but the fairy shrimp tends to occur primarily in small pools, and the tadpole shrimp typically occurs in medium to large vernal pools, perhaps because of its relatively long lifespan compared to other vernal pool branchiopods (USFWS 2005). Potential for both species to occur on the project site is limited to the recently disked grassland in the WPIC West Levee Extension portion of the project site. Although this area had been recently disked when the July 2021 fields survey was conducted in this portion of the project site, Google Earth™ imagery indicates vernal pool or other seasonal wetlands occur on this parcel. The nearest known occurrence of dwarf downingia to this area is from vernal pools at Beale AFB, approximately 6 miles to the northeast, and is one of only two occurrences in Yuba County (DFW 2021a).

Table 3.5-3. Special-status Wildlife with Potentially Suitable Habitat on or Adjacent to the Project Site

Species	Status ¹ Federal State	Habitat Associations	Potential to Occur on or Adjacent to the Project Site
Invertebrates			
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T –	Vernal pools, including a wide range of sizes and depths	Moderate; could occur in WPIC West Levee Extension area, if suitable vernal pools are present; known to occur within 1 mile, on west side of State Route 70 and east side of State Route 65
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E –	Vernal pools, typically medium to large	Moderate; could occur in WPIC West Levee Extension area, if suitable vernal pools are present; known to occur within 0.5 mile, on the west side of State Route 70
monarch butterfly <i>Danaus plexippus</i>	C –	Requires milkweed for egg laying and larval feeding and various nectar plants	Moderate; could occur throughout project site, with highest potential in riparian areas
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T –	Closely associated with elderberry, which is an obligate host for the beetle larvae	Moderate; elderberry shrubs occur in several locations along the WPIC and extensively in the Goldfields West Levee portion of the project site
Amphibians			
Western spadefoot <i>Branchinecta lynchi</i>	T –	Vernal pools, primarily in grasslands but also valley hardwood-foothill woodland	Very low; could occur in WPIC West Levee Extension area, if suitable vernal pools are present but has not been documented in Yuba County and nearest occurrence is approximately 20 miles north of the project site
Reptiles			
giant gartersnake <i>Thamnophis gigas</i>	T T	Open water and emergent vegetation in marshes, sloughs, and other aquatic habitats; also requires grassy banks and vegetation openings for basking and higher elevation refuge from winter flooding	Low; WPIC and WPIC West Levee Extension area provide potentially suitable habitat, but no occurrences have been confirmed in the region, and no individuals were observed during extensive previous TRLIA surveys and monitoring
western pond turtle <i>Emys marmorata</i>	– SSC	Variety of permanent or near-permanent water bodies, typically deep water; nests in sunny upland habitats, typically within several hundred feet of aquatic habitat	Moderate; WPIC provides suitable aquatic habitat and upland areas in the WPIC could provide suitable nesting habitat

Table 3.5-3. Special-status Wildlife with Potentially Suitable Habitat on or Adjacent to the Project Site

Species	Status ¹ Federal State		Habitat Associations	Potential to Occur on or Adjacent to the Project Site
Birds				
Swainson's hawk <i>Buteo swainsoni</i>	–	ST	Nests in woodlands and scattered trees and forages in grasslands and agricultural fields	High; known to forage in grasslands and nest in trees throughout the project area
white-tailed kite <i>Elanus leucurus</i>	–	FP	Nests in woodlands and isolated trees and forages in grasslands, pasture, and agricultural fields	High; known to nest in trees along the Feather River and likely to nest and forage elsewhere in the project area
northern harrier <i>Circus hudsonius</i>	–	SSC	Nests and forages in grasslands, agricultural fields, and marshes; nests on the ground in dense, tall, undisturbed vegetation	High; known to nest fallow fields east of the Feather River and grasslands at Beale Air Force Base; likely to nest and forage elsewhere in the project area
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	T	E	Nests and forages in large areas of mature riparian forest with dense deciduous trees and shrubs	Low; no suitable habitat is present on the project site, but could occur in riparian habitat along the Feather and Bear rivers
burrowing owl <i>Athene cunicularia</i>	–	SSC	Nests and forages in grasslands, agricultural lands, open shrublands, and open woodlands with natural or artificial burrows or friable soils	Low; project site could provide suitable habitat, but suitable burrows are currently absent, and no burrowing owls have been observed during extensive previous TRLIA surveys and biological monitoring; nearest recent known occurrence is from more than 10 miles south
loggerhead shrike <i>Lanius ludovicianus</i>	–	SSC	Forages and nests in grasslands, shrublands, and open woodlands	Moderate; suitable foraging habitat occurs throughout the project site, and shrubs and small trees provide suitable nest sites
bank swallow <i>Riparia riparia</i>	–	T	Forages in a variety of habitats; nests in vertical banks or bluffs, typically adjacent to water, devoid of vegetation, and with friable, eroding soils	High; known to nest along the Feather River adjacent to the project site and likely to forage over the project site, but no suitable nesting habitat is present on the project site
song sparrow (“Modesto” population) <i>Melospiza melodia</i>	–	SSC	Nests and forages in dense vegetation in marsh, riparian forest and scrub, and along irrigation and drainage canals.	Moderate; potentially suitable nesting and foraging habitat is present in the Goldfields West Levee area and along the WPIC and Bear and Feather rivers
tricolored blackbird <i>Agelaius tricolor</i>	–	T	Nests in cattails and tules, riparian scrub, grain crops, and other low, dense vegetation; forages in grasslands and fields	Moderate; grassland in the WPIC West Levee Extension area provides suitable foraging habitat, and recently active nest colonies are known from within 1 mile

Table 3.5-3. Special-status Wildlife with Potentially Suitable Habitat on or Adjacent to the Project Site

Species	Status ¹ Federal State	Habitat Associations	Potential to Occur on or Adjacent to the Project Site
Mammals			
pallid bat <i>Antrozous pallidus</i>	– SSC	Roosts in caves, crevices, and undisturbed buildings in a variety of arid habitats	Low; could forage over the project site but orchards and other scattered trees provide poor roosting habitat; nearest known occurrence is on the east side of the Sutter Buttes
western red bat <i>Lasiurus blossevillii</i>	– SSC	Roosts solitarily in foliage of mature trees associated with woodland borders, rivers, and walnut orchards, especially in wide riparian corridors dominated by mature trees	Low; could forage over the project site and roost in adjacent habitat along the Feather and Bear rivers, but orchards and other scattered trees on the project site provide poor roosting habitat; nearest known occurrence is approximately 10 miles northeast

¹ Status Definitions

– = No status

Federal Status

FE = Listed as Endangered under the Federal Endangered Species Act

State Status

CE = Candidate for Listing as Endangered under the California Endangered Species Act

FP = Fully Protected under the California Fish and Game Code

SE = Listed as Endangered under the California Endangered Species Act

SSC = California Species of Special Concern

ST = Listed as Threatened under the California Endangered Species Act

Sources: California Department of Fish and Wildlife 2021a, GEI Consultants, Inc. observations made in 2021, USFWS 2021

Monarch butterfly recently became a candidate for Federal listing as threatened or endangered. Adults feed on a diversity of blooming nectar resources throughout their migration routes and breeding grounds. Monarchs also require milkweed (primarily *Asclepias* spp.) for egg laying and larval development and feeding. In western North America, nectar and milkweed resources are often associated with riparian corridors (USFWS 2020). Migratory monarchs in the western population primarily overwinter in groves along the coast of California and Baja California. Monarchs have been documented in the project vicinity in recent years (Western Monarch Milkweed Mapper 2021) and have potential to occur on the project site, particularly in the Goldfields West Levee portion.

Valley elderberry longhorn beetle is Federally listed as threatened. It is endemic to the Central Valley and is found only in association with its host plant, the elderberry shrub. Adult beetles feed on the shrubs, females lay eggs on the leaves or stems, and larvae hatch and burrow into stems 1.0 inch or greater in diameter, eventually emerging as adults. Numerous elderberry shrubs and shrub clusters occur in the Goldfields West Levee portion of the project site (*refer to Figure 3.5-1*) and several shrubs occur along the WPIC West Levee. Valley elderberry longhorn beetle has been documented near the project sites, including along the Bear and Feather rivers and in the Goldfields.

Reptiles

Two special-status reptiles have potential to occur in the project area: giant gartersnake (*Thamnophis gigas*) and western pond turtle (*Emys marmorata*).

Giant gartersnake is Federally- and State listed as threatened and inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands. Occupied aquatic habitats typically contain permanent or seasonal water, mud bottoms, and vegetated dirt banks. Giant gartersnakes are inactive or greatly reduce their activities during late fall and winter, typically emerging from upland winter retreats in late March to early April and often remaining active through October. Three habitat components appear to be most important to giant gartersnake: (1) freshwater aquatic habitat with protective emergent cover, (2) nearby upland habitat that can be used for thermoregulation, and upland refugia that provide winter hibernacula (USFWS 2017a). The WPIC and rice fields in the WPIC West Levee Extension area provide potentially suitable aquatic habitat and marginally suitable upland habitat. However, potential for the species to occur on or adjacent to the project site is considered low no giant gartersnakes were documented during extensive 2005 or 2014 trapping efforts on nearby Beale AFB (Hansen, pers. comm. 2021¹) and no individuals were observed during hundreds of hours of focused surveys and monitoring conducted during previous WPIC West Levee improvements.

Western pond turtle, a California species of special concern, inhabits still and slow-moving aquatic habitats. This species occurs throughout western California, including the Coast Ranges and Central Valley. It is found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation and rocky or muddy bottoms. Pond turtles also require basking sites such as logs, rocks, cattail mats, and exposed banks. Female turtles nest in April through August in loose soils near-aquatic habitat, usually along stream or pond margins (CaliforniaHerps.com 2021). The WPIC provides suitable aquatic habitat suitable and may provide suitable nesting habitat. Mining tailing ponds in the Goldfields West Levee portion of the project site may also provide suitable aquatic habitat, but upland habitat is poor for nesting due to the cobble substrate and very limited soil development.

Birds

Nine special-status birds have low to high potential to occur in the project area: Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), bank swallow (*Riparia riparia*), the Modesto population of song sparrow (*Melospiza melodia*), and tricolored blackbird (*Agelaius tricolor*).

Swainson's hawk is State listed as threatened. In California, the species is restricted to the Central Valley and the Great Basin region in the northeast. Swainson's hawks require grassland

¹ Conversation between Eric Hansen (consulting environmental biologist, Sacramento, CA) and Anne King of GEI Consultants, Inc. regarding giant gartersnake status in Yuba County.

or other open habitat with adequate prey, in association with suitable nest trees. Suitable foraging habitats include grasslands and lightly grazed pastures, alfalfa and other hay crops, and certain grain and row crops. Grassland habitat on and adjacent to the project site provides suitable foraging habitat. The project area is located within the portion of the Swainson's hawk breeding range that has been determined to support a moderate density of active nests (DFG 2007). Active nests have been documented along the Feather and Bear rivers and the WPIC during surveys and monitoring conducted for previous TRLIA projects; no nests were documented in the Goldfields West Levee portion of the project site during recently completed surveys for the Goldfields 200-year Flood Protection Project.

White-tailed kite is fully protected under Section 3511 of the FGC. This species occurs in virtually all lowlands of California, west of the Sierra Nevada, and in the southeast desert; it is common in the Central Valley and along the entire California coast. White-tailed kites breed in lowland grasslands, agricultural areas, wetlands, oak woodland and savanna, and riparian areas with nearby open habitats (Moore 2000:1). They forage in grasslands, pasture, and some agricultural crops. Grassland habitat on and adjacent to the project site provides suitable foraging habitat. Active nests have been documented along the Feather River during surveys and monitoring conducted for previous TRLIA projects and could occur wherever suitable nest trees are present on and adjacent to the project site.

Northern harrier is a California species of special concern that occurs primarily in lowlands throughout much of the State. The Central Valley supports most of the state's breeding birds, which nest and forage in a variety of open habitats, including marsh, wet meadows, borders of lakes, rivers, and streams, grasslands, weedy fields, and some agricultural crops. Harriers nest on the ground in dense, often tall vegetation in relatively undisturbed areas (Davis and Niemla 2008). Grassland habitat on and adjacent to the project site provides suitable foraging habitat and some areas may also provide suitable nesting habitat. Active nests have been documented in fallow fields east of the Feather River during surveys and monitoring conducted for previous TRLIA projects.

Western yellow-billed cuckoo is Federally listed as threatened. This neotropical migratory bird breeds in riparian areas in the western United States, including California, and winters in South America. Western yellow-billed cuckoos nest almost exclusively in large (25 acres or more), wide patches of cottonwood-willow riparian forests. Focused surveys conducted along the Feather River in 2012 and 2013 did not document any yellow-billed cuckoos, and the northern California breeding population was thought to be limited to the Sacramento River at that point (Dettling et al. 2015). However, in 2019, an individual yellow-billed cuckoo was observed in riparian forest on the west side of the Feather River, near the north end of the Feather River East Levee portion of the project site (ICF, unpublished data).

Burrowing owl is a California species of special concern that prefers open, dry habitats. In California, the species occurs throughout the Central Valley, southwestern deserts, and northeastern basin, as well as the Carrizo Plain and other western valleys. Burrowing owl is

primarily a grassland species, but it can thrive in some landscapes that are highly altered by human activity if suitable burrows for roosting and nesting and short vegetation are present. These owls typically nest and roost in burrow systems created by medium-sized mammals, artificial sites (e.g., drainpipes and culverts), or self-excavated burrows, where soil conditions are appropriate (Gervais et al. 2008). Grassland habitat on and adjacent to the project site provides potentially suitable habitat for burrowing owl, but suitable burrows are typically absent from the levee system due to control of burrowing mammals and regular maintenance activities. In addition, the Goldfields West Levee area generally lack suitable burrowing substrate, and the WPIC West Levee Extension area does not support burrows due to recent disking. No burrowing owls have been observed during numerous focused field surveys conducted throughout the project site for previous TRLIA projects.

Loggerhead shrike is a California species of special concern that inhabits lowland and foothill areas with scattered shrubs and trees. This species occurs throughout most of California, except the Sierra Nevada, high elevations of the Coast Ranges, and the northwestern part of the state. In California, loggerhead shrikes breed primarily in shrubland and open woodland with some grass cover and areas of bare ground. In the Central Valley, they nest in shrubs and small trees, primarily at the edges of riparian habitat (Humble 2008). Loggerhead shrikes are not known to occur in the project area, but occurrences of this species are rarely reported to the CNDDDB. Shrubs and small trees throughout the project site provide potentially suitable nesting habitat for this species, which could also forage in grassland portions of the site.

Bank swallow is State listed as threatened. California breeding populations winter in Central and South America and breed in the northern and central regions of the state in colonies ranging in size from three to over 3,000 nest burrows. Most bank swallows in California nest along the Sacramento River and its tributaries, excavating burrows in vertical banks created by natural river processes, such as bank erosion and deposition resulting from lateral migration of rivers within their natural meander belt and floodplain. Nesting colonies are also found in artificial sites, including sand quarries and road cuts, but these are uncommon (Bank Swallow TAC 2013). The project site does not provide suitable nesting habitat, but individuals from active nest colonies along the Feather River adjacent to the site (DFW 2021a) or migrating through the area could forage onsite.

The Modesto population of song sparrow is a California species of special concern. Song sparrows occur widely throughout North America, but the Modesto population is endemic to California and restricted to the north-central portion of the Central Valley. The Sacramento–San Joaquin Delta and the Butte Sink are the currently known areas of highest abundance. Historically, these sparrows were described as having an affinity for emergent freshwater marsh dominated by tules and cattails, as well as riparian willow thickets. Those in the Butte Sink continue to nest in such habitat, and recent studies have documented nesting in riparian forest, along irrigation canals, and in young oak woodland restoration sites (Gardali 2008). Although this population of song sparrow has not been recently documented in the project vicinity, the presence of song sparrows is rarely documented because of the common status of the species as a

whole. Suitable foraging and nesting habitat for song sparrow occurs along the WPIC and the Feather and Bear rivers, as well as in the Goldfields West Levee area.

Tricolored blackbird is a California species of special concern endemic to California that occurs throughout the Central Valley. Tricolored blackbirds nest colonially; they historically preferred freshwater marshes dominated by cattails or tules. However, an increasing number of colonies have been documented in Himalayan blackberry and thistles, with some of the largest recent colonies in silage and grain fields. Preferred foraging habitats include crops such as rice, alfalfa, irrigated pastures, and ripening or cut grain fields (e.g., oats, wheat, silage), as well as annual grasslands, cattle feedlots, and dairies (Beedy 2008). Since 2000, active nest colonies in the project area have been documented near the project site, adjacent to the WPIC and Reeds Creek (DFW 2021a). Grassland habitat on and adjacent to the project site provides suitable foraging habitat. The Goldfields West Levee area provides potentially suitable nesting habitat, but this habitat has relatively low quality.

Mammals

Western red bat (*Lasiurus blossevillii*) is a California species of special concern that occurs throughout the Central Valley. Western red bats typically roost in the foliage of mature trees associated with woodland borders, rivers, and agricultural areas. Roost trees are typically large cottonwoods, sycamores, walnuts, and willows. Activity levels in the Central Valley, as measured by acoustic surveys, have been shown to be highest in riparian habitat corridors more than 160 feet wide and dominated by mature trees (Pierson et al. 2006). The only documented occurrence of Western red bat in Yuba County is from the Sierra Nevada foothills, approximately 10 miles northeast of the project area (DFW 2021a). The species may forage over the project site and roost along the Feather River, but trees on the project site are unlikely to support roosting individuals.

Pallid bat (*Antrozous pallidus*) is a California species of special concern that occurs at low to moderate elevations throughout California. These bats occur in a wide variety of habitats, including grassland, shrubland, woodland, and forest, but they are most common in open, dry habitats with rocky areas for roosting. Pallid bats roost primarily in caves, crevices, mines, and occasionally in hollow trees and buildings. The species may forage over the project site, but no suitable roosting habitat occurs on or adjacent to the site. The only known roost site in the region is at a small bridge near Lincoln.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration under State and Federal regulations. Sensitive habitats may be of special concern for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat for special-status species.

Waters and Wetlands

USACE has jurisdiction over features that qualify as waters of the United States, including some wetlands that support appropriate vegetation, soils, and hydrology. The mining ponds are not anticipated to be subject to USACE jurisdiction, because USACE typically does not consider “waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel” to be waters of the United States. If field surveys confirm seasonal wetlands occur in the northwestern portion of the WPIC West Levee Extension area, these wetlands and the freshwater marsh habitat would likely be subject to USACE jurisdiction as wetlands adjacent to Reeds Creek, which is a water of the United States. The WPIC is also a water of the United States.

Similar to USACE, CVRWQCB also does not typically regulate artificial ponds associated with surface mining as waters of the State. However, the freshwater marsh, potential seasonal wetlands, and the WPIC are waters of the State. The latter also is subject to regulation by DFW under Section 1600 of the FGC.

Critical Habitat and Essential Fish Habitat

ESA Section 3(5)A defines critical habitat as the specific areas within the geographical area occupied by Federally listed species on which are found physical or biological features essential to the conservation of the species and that may require special management considerations or protection. The project site is not within proposed or designated critical habitat for any Federally listed species. The Bear, Feather, and Yuba rivers are designated critical habitat for several fish taxa and Essential Fish Habitat for Pacific Coast salmon, but these designations do not apply to the WPIC.

Sensitive Natural Communities

DFW maintains a list of sensitive natural communities (DFW 2021b). Within that list, DFW identifies and ranks natural communities of special concern considered to be highly imperiled. Riparian habitats, including those that occur on and adjacent to the project site, are communities of special concern. Vernal pools also are a community of concern, and seasonal wetlands that may occur in the WPIC West Levee Extension area could qualify as vernal pools.

3.5.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

Federal Endangered Species Act

Under the ESA (Title 16, Section 1531 and following sections of the U.S. Code [16 USC 1531 et seq.]), USFWS and NMFS have regulatory authority over species listed or proposed for Federal listing as threatened or endangered and over projects that may result in take of Federally listed species. In general, persons subject to the ESA (including private parties) are prohibited from “take” of endangered or threatened fish and wildlife species on private property and from taking endangered or threatened plants in areas under Federal jurisdiction or in violation of State law.

The ESA defines take as, "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harass" is further defined as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering. "Harm" is further defined as an act which kills or injures wildlife. This may include significant habitat modification or degradation where it kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 7 of the ESA outlines procedures for Federal interagency cooperation to protect and conserve Federally listed species and designated critical habitat. Section 7(a)(2) requires Federal agencies to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or destroying or adversely modifying designated critical habitat. For projects where Federal action is not involved and take of a listed species may occur, a project proponent may seek an incidental take permit.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires an agency to consult with USFWS if the agency plans to conduct, license, or permit an activity involving the impoundment, diversion, deepening, control, or modification of a stream or body of water. The Act also requires consultation with the head of the state agency that administers wildlife resources in the affected state. The purpose of this process is to promote conservation of wildlife resources by preventing loss of and damage to such resources and to provide for the development and improvement of wildlife resources in connection with the agency action.

Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (MBTA) (16 USC, Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, bird nests, and eggs and applies to all persons and agencies in the U.S., including Federal agencies. The MBTA is administered by the USFWS, but there is no process for obtaining project-related take authorization under the MBTA.

Clean Water Act

Section 404

Section 404 of the Clean Water Act (CWA) requires a project proponent to obtain a permit from USACE before engaging in any activity that involves discharge of dredged or fill material into waters of the United States, including wetlands. On August 31, 2021, the U.S. District Court for the District of Arizona vacated and remanded the Navigable Waters Protection Rule in the case of the Pascua Yaqui Tribe v. EPA. Following the decision, EPA and USACE halted implementation of the Navigable Waters Protection Rule and are currently interpreting "waters

of the United States” consistent with the pre-2015 regulations and associated guidelines and case law, including the Supreme Court decision *Rapanos v. United States*, 547 U.S. 715 (2006). On December 7, 2021, the EPA and USACE published the proposed rule to revise and restore the definitions of “waters of the United States” consistent with the 1986 regulations informed by Supreme Court case law.

Waters of the United States are currently defined as territorial seas and waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; interstate waters, including wetlands; other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; impoundments of waters otherwise defined as waters of the United States; and wetlands adjacent to waters identified above. Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. During review of a project, USACE must ensure compliance with applicable Federal laws, including EPA’s Section 404(b)(1) Guidelines. USACE regulations require impacts on waters of the United States, including wetlands, to be avoided and minimized to the maximum extent practicable, and that unavoidable impacts be compensated (33 CFR 320.4[r]).

Section 401

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate State agency stating that the intended dredging or filling activity is consistent with the State’s water quality standards and criteria. In California, the State Water Resources Control Board (SWRCB) delegates the authority to grant water quality certification to the nine Regional Water Quality Control Boards (RWQCBs); the CVRWQCB has jurisdiction over the San Joaquin Valley.

State Plans, Policies, Regulations, and Laws

California Endangered Species Act

CESA (FGC 2050 et seq.) directs State agencies not to approve projects that would jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of a species. Furthermore, CESA states that DFW, together with the project proponent and any State lead agency, must develop reasonable and prudent alternatives consistent with conserving the species, while maintaining the project purpose to the greatest extent possible. Take of State-listed species incidental to otherwise lawful activities requires a permit, pursuant to Section 2081(b) of CESA. Project-related impacts of the authorized take must be minimized and fully mitigated, and adequate funding must be in place to implement mitigation measures and monitor compliance

and effectiveness. Mitigation can include land acquisition, permanent protection and management, and/or funding in perpetuity of compensatory lands.

As under Federal law, listed plants have considerably less protection than fish and wildlife under State law. The California Native Plant Protection Act (FGC Section 19000 et seq.) allows landowners to take listed plant species from, among other places, a canal, lateral ditch, building site, or road, or other ROW, provided that the owner first notifies DFW and gives the agency at least 10 days to retrieve (and presumably replant) the plants before they are destroyed.

California Fish and Game Code

Rivers, Lakes, and Streams

Under FGC Section 1602, it is unlawful for any entity to substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or to deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake, without first notifying DFW of such activity and obtaining an agreement authorizing the activity. In practice, DFW may exert authority over any feature that holds water at least periodically or intermittently, and associated habitat (e.g., riparian vegetation), that supports fish, other aquatic life, or terrestrial wildlife.

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the FGC provide protection from take for 37 fish and wildlife species referred to as fully protected species. Except for take related to scientific research or incidental take authorized as part of an approved Natural Communities Conservation Plan (NCCP), take of fully protected species is prohibited.

Protection of Birds

Section 3503 of the FGC states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs.

Assembly Bill 454

Assembly Bill (AB) 454 was signed into law in 2019, in response to changes to MBTA interpretation and application proposed by USFWS (USFWS dropped the proposed changes in 2021). AB 454 strengthened the State's protections for migratory birds beyond those specified under Federal law, clarified existing State safeguards for native birds (i.e., FGC), and closed loopholes where California law defers to Federal law.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act; California Water Code Section 13000 et seq.) requires that each of the State's nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards

for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. RWQCB jurisdiction includes Federally protected waters and areas that meet the definition of “waters of the state.” Waters of the state include all surface water and groundwater, including saline waters, within the State’s boundaries. The RWQCBs have discretion to take jurisdiction over areas not Federally regulated under Section 401, provided they meet the definition of waters of the State. Mitigation requiring no net loss of wetlands functions and values of waters of the State is typically required by the RWQCB.

Regional and Local Plans, Policies, Regulations, and Ordinances

Most of the policies and actions included in the Natural Resources Element of the Yuba County 2030 General Plan (Yuba County 2011) apply to development projects. However, several policies and actions address public investments and overall resource protection and could therefore apply to the proposed project. These pertinent policies and actions are summarized below.

- **Policy NR5.5:** The County will support cooperative restoration, development, and promotion of natural resources with the U.S. Fish and Wildlife Service, the Army Corps of Engineers, the Bureau of Reclamation, the U.S. Forest Service, and other public agencies with an interest in the Yuba County’s water and wildlife assets.
- **Policy NR5.7:** New developments and public investments near Yuba County’s streams and rivers shall be designed to avoid tree removal, erosion, or other modifications that would adversely affect salmonid habitat.

3.5.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G and Section 15065 of the State CEQA Guidelines, as amended. Implementing the project would have a significant impact on biological resources if it would result in any of the following:

- 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 DFW, USFWS, or NMFS
- 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 DFW, USFWS, or NMFS
- Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, 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 nursery sites by native wildlife
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), NCCP, or other approved local, regional, or state HCP
- Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species

Analysis Methodology

This analysis of impacts on biological resources that could result from project implementation focuses on evaluating the potential to adversely affect special-status species and their habitats and other habitats considered sensitive by Federal, State, or local agencies. This evaluation considers temporary and permanent habitat loss and disturbance and potential for direct or indirect injury or death of individuals. Impact conclusions consider the habitat quality, impact extent, impact duration, and impact intensity (e.g., level of harm, injury/loss, or degradation suffered by the resource).

Comments submitted in response to the NOP were reviewed for relevance to the impact analysis and mitigation measure development. DFW provided recommendations related to the biological resources impact analysis and mitigation measures, potentially applicable regulations, and permits that may be required. All comments were considered during impact analysis and mitigation measure development.

Issues Not Discussed Further

Conflict with Local Ordinances and Policies. Yuba County does not have any ordinances prescribing specific requirements for tree preservation or protection of other biological resources. Most of the policies identified in the Natural Resources Element of the Yuba County 2030 General Plan (Yuba County 2011) apply to development projects. However, Policy NR5.7 addresses public investments and overall resource protection and could therefore apply to the proposed project. This policy requires public investments near Yuba County streams and rivers be designed to avoid tree removal, erosion, or other modifications that would adversely affect salmonid habitat. None of the project components would affect salmonid habitat. Therefore, the project would not conflict with local ordinances or policies and this issue is not discussed further.

Habitat Conservation Plans and Natural Community Conservation Plans. The project site is not within an area covered by an adopted HCP or NCCP. Several local jurisdictions, including Yuba County, partially developed the Yuba-Sutter Regional Conservation Plan, intended to be a joint HCP/NCCP, to address indirect growth inducing impacts that would result from

improvements to SRs. However, work on the plan ended in 2018 because forecasted growth in the plan area never materialized. Therefore, the project would not conflict with an adopted HCP or NCCP and this issue is not discussed further.

Common Habitats and Species. Project implementation would affect common habitats and wildlife, including nesting birds. The potential level of loss of these resources that are not considered sensitive or to have special status would not substantially reduce their abundance or cause them to drop below self-sustaining levels. Therefore, potential impacts on common habitats and species would not alone constitute a significant impact under CEQA, and this issue is not discussed further in this analysis. However, TRLIA acknowledges that it is responsible for ensuring project implementation does not violate the MBTA or FGC.

Impact Analysis and Mitigation Measures

Impact 3.5-1: Impacts on Special-status Plants

Dwarf downingia, Ahart's dwarf rush, legenera, woolly rose-mallow, Baker's navarretia, and Sanford's arrowhead have low potential to occur in specific portions of the project site. Species associated with vernal pools could occur in the northwest portion of the WPIC West Levee Extension area, and those associated with other aquatic areas, such as marsh and canals, could occur at the eastern end of this area, as well as in the mining ponds and WPIC.

Construction activities would include fill placement and other ground disturbance in habitat that may be suitable for these species. Up to approximately 2 acres of seasonal wetlands that could support vernal pool species (*refer to Figure 3.5-2*) and 2 acres of habitat that could support the other species would be removed. This habitat loss would represent a small proportion of the overall habitat present in and adjacent to the affected areas, but it could result in direct loss of individuals and indirectly affect adjacent occupied habitat. This could result in a substantial adverse effect on the regional distribution of the affected species and is considered a **potentially significant** impact.

Mitigation Measures: Mitigation Measure 3.5-1 has been identified to address this impact and Mitigation Measure 3.8-2 also would address this impact.

Mitigation Measure 3.5-1: Minimize Impacts of Special-status Plants and Compensate for Unavoidable Impacts.

TRLIA and its construction contractor(s) will implement the following measures to reduce potential effects on special-status plants associated with the Goldfields West Levee, WPIC West Levee improvements, and WPIC West Levee Extension:

- Within 1 year before project-related disturbance occurs in or immediately adjacent to areas with potential to support special-status plants, a qualified biologist or botanist familiar with the target species will conduct a focused survey of suitable habitat for Dwarf downingia, Ahart's dwarf rush, legenera, woolly rose-mallow, Baker's

navarretia, and Sanford's arrowhead in and within 50 feet of the project disturbance area. The surveys will be conducted during the specific blooming period for the relevant species. If no individuals are found, no further mitigation is required.

- If special-status plants are detected, impacts will be avoided wherever possible by considering plant locations during development of the final project design, including the levees, maintenance zones, and construction staging areas and access routes. A 50-foot protective barrier will be established and maintained during construction to minimize impacts on occupied habitat that will be preserved adjacent to the construction footprint.
- If direct loss of special-status plants cannot be avoided, a mitigation and monitoring plan will be developed and implemented to ensure no net loss of habitat occupied by the affected species.
 - If relocation efforts are part of the mitigation and monitoring plan, the plan will outline methods for relocating unavoidable populations to other areas of suitable habitat that occur onsite or at a nearby suitable location in the project vicinity that will not be subject to future adverse disturbances. The mitigation and monitoring plan will include details about the relocation methods to be used, receptor site preparation, post-transplantation monitoring, and long-term protection and management. Relocation efforts will be deemed successful when occupation by the relocated species is demonstrated in an area at least equal to that from which they were removed.
 - If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation and monitoring plan. Specifically, the plan will list responsible parties for long-term management, conservation easement holders, and long-term management requirements as appropriate to target the preservation of long-term viable populations. Off-site mitigation will be provided in an amount at least equal to the area of occupied habitat that is removed during project construction.

Timing: Before, during, and after project construction activities in areas supporting suitable habitat for special-status plants.

Responsibility: TRLIA and its construction contractor(s).

Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion.

Please *see* Mitigation Measure 3.8-2 in Impact 3.8-2 of Section 3.8, "Geology, Soils, and Paleontological Resources," for full text of this mitigation measure.

Significance after Mitigation: Implementing Mitigation Measure 3.5-1 would reduce the potentially significant impact associated with loss of special-status plants by conducting focused surveys, avoiding populations where feasible, attempting to relocate those that cannot be avoided and/or establishing a new population at a location that can be protected from future removal, and compensating for impacts that cannot be avoided. In addition, Implementing Mitigation Measure 3.8-2 would minimize potential for indirect impacts on adjacent habitat. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-2: Impacts on Federally Listed Vernal Pool Invertebrates

Seasonal wetlands that provide suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp may occur in a portion of the WPIC West Levee Extension area (*refer to Figure 3.5-2*). Based on aerial image interpretation, a total of approximately 2 acres of seasonal wetland habitat may occur within the project boundary and could be directly filled by constructing the levee extension and establishing the maintenance corridor. This habitat loss would represent a small proportion of the overall habitat present in and adjacent to the affected area, but it could result in direct loss of individuals and indirectly affect additional adjacent occupied habitat. Because known occurrences on these species are rare locally and in the larger region, loss of up to approximately 2 acres of potentially occupied habitat would be a **significant** impact.

Mitigation Measures: Mitigation Measure 3.5-2 has been identified to address this impact, and Mitigation Measure 3.8-2 also would address this impact.

Mitigation Measure 3.5-2: Minimize Impacts on Federally Listed Vernal Pool Invertebrates and Compensate for Unavoidable Impacts.

TRLIA and its construction contractor(s) will implement the following measures to minimize and compensate for potential effects on vernal pool fairy shrimp and vernal pool tadpole shrimp associated with the WPIC West Levee Extension:

- During at least one year of normal rainfall before project-related disturbance occurs in the WPIC West Levee Extension portion of the project site, a qualified biologist will map areas of suitable ponded habitat and record the hydroperiod to determine if the seasonal wetlands are suitable for vernal pool fairy shrimp or vernal pool tadpole shrimp.
- If suitable habitat is identified, impacts will be avoided wherever possible by considering locations of suitable habitat during development of the final project design, including the levee, maintenance zone, and construction staging areas and access routes. A 50-foot protective barrier will be established and maintained during construction to minimize impacts on occupied habitat that will be preserved adjacent to the construction footprint.
- If impacts on all suitable habitat cannot be avoided, TRLIA will coordinate with USFWS to develop and implement an appropriate mitigation strategy to compensate for unavoidable habitat loss. Mitigation will likely include purchase of vernal pool

habitat at a USFWS-approved mitigation bank. Appropriate mitigation ratios will be developed during consultation with USFWS but are anticipated to be based on 3 acres of habitat preservation and 1 acre of habitat creation for each acre of habitat loss.

Timing: Before and during construction activities in areas potentially supporting suitable habitat for federally listed vernal pool invertebrates.

Responsibility: TRLIA and its construction contractor(s).

Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion.

Please *see* Mitigation Measure 3.8-2 in Impact 3.8-2 of Section 3.8, “Geology, Soils, and Paleontological Resources,” for full text of this mitigation measure.

Significance after Mitigation: Implementing Mitigation Measure 3.5-2 would reduce the potentially significant impact associated with loss of vernal pool invertebrates by evaluating habitat suitability, minimizing encroachment on suitable habitat, and compensating for impacts that cannot be avoided. In addition, Implementing Mitigation Measure 3.8-2 would minimize potential for indirect impacts on adjacent habitat. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-3: Impacts on Monarch Butterfly

Mixed riparian habitat on the project site supports some plant species, such as willows, likely to provide nectar habitat for monarch butterfly. No milkweed has been observed on or immediately adjacent to the project site, but the primary riparian areas have not been surveyed due to access restrictions. Implementing the Goldfields West Levee and WPIC West Levee Extension portions of the project would require removal of potential monarch nectar plants and could remove milkweed that provides suitable habitat for egg-laying and larval development. Approximately 5 acres of monarch habitat may be removed from the Goldfields West Levee area and approximately 0.75 acre may be removed from the WPIC West Levee Extension area. This habitat loss would represent a small fraction of the amount of similar present within the Goldfields and along Reeds Creek (riparian areas adjacent to these portions of the project site) and the larger region. Because the western population of monarch butterfly is a wide-ranging migratory species, this extent of potential habitat loss is unlikely to have a substantial adverse effect on monarch butterfly. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact 3.5-4: Impacts on Valley Elderberry Longhorn Beetle

The Goldfields West Levee portion of the project site supports numerous elderberry shrubs and shrub clumps that provide suitable habitat for valley elderberry longhorn beetle. Because access to this area is not available at this time, the exact number of shrubs has not been determined, but

at least one shrub occurs at each location (*refer to Figure 3.5-1*). Valley elderberry longhorn beetle is known to occur in the Goldfields, and the project site provides high-quality habitat for the species; therefore, there is reasonable potential for the on-site shrubs to be occupied. Elderberry shrubs within the levee footprint and potentially the maintenance corridor would need to be removed. Removal of these shrubs would result in mortality of beetle larva if present in the stems. Construction activities immediately adjacent to elderberry shrubs outside the construction area could accidentally damage the shrubs. Elderberry shrubs are also known to occur at several locations along the WPIC and raising the existing WPIC West Levee may encroach on these areas and require elderberry shrub removal or work immediately adjacent to shrubs. These impacts could substantially affect the local valley elderberry longhorn beetle population and would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measure 3.5-4 has been identified to address this impact.

Mitigation Measure 3.5-4: Minimize Impacts on Valley Elderberry Longhorn Beetle and Compensate for Unavoidable Impacts.

TRLIA and its construction contractor(s) will implement the following measures, consistent with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017b) to minimize and compensate for unavoidable effects on valley elderberry longhorn beetle:

- Elderberry shrub removal will be avoided wherever possible by considering shrub locations during development of the final project design, including the levee, maintenance zone, and construction staging areas and access routes.
- Before project activities begin, worker awareness training will be provided by a qualified biologist to inform on-site project personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance.
- Before project activities near elderberry shrubs begin, all areas to be avoided during construction activities will be fenced and/or flagged as close to construction limits as feasible.
- A qualified biologist will monitor the work area at intervals appropriate to the project to assure that all avoidance and minimization measures are implemented.
- To the maximum extent feasible, activities that occur within 165 feet of an elderberry shrub will occur between November and February and will avoid removal of branches and stems greater than 1 inch in diameter.
- Elderberry shrubs that must be removed to accommodate project construction will be transplanted, if feasible to safely do so, given potential access challenges related to their location. The transplant location will be suitable for elderberry growth and reproduction and as close as possible to the shrubs' original location. Transplanting will be implemented as follows:

- If feasible, elderberry shrubs will be transplanted when they are dormant (November through the first 2 weeks in February) and after they have lost their leaves.
- A qualified biologist will conduct an exit hole survey immediately before transplanting and will be onsite during transplanting activities. The biologist will record the number of exit holes found on each shrub, the precise location of each shrub that is removed, and the precise transplant location for each shrub. This information will be reported to USFWS and the CNDDDB.
- Compensatory mitigation will be provided for elderberry shrub removal. An appropriate mitigation approach will be developed and implemented in consultation with USFWS to ensure no net loss of habitat for valley elderberry longhorn beetle. Mitigation will include replacing individual elderberry shrubs and/or riparian habitat at ratios ranging from 1:1 to 3:1, depending on circumstances of the elderberry shrub distribution and habitat in which the shrubs occur.

Timing: Before and during construction activities where elderberry shrubs occur.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measure 3.5-4 would reduce the potentially significant impact associated with elderberry shrub removal and potential accidental damage by minimizing elderberry shrub removal, transplanting elderberry shrubs that must be removed, and compensating for shrub removal that cannot be avoided. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-5: Impacts on Special-status Reptiles

Mining ponds in the Goldfields West Levee portion of the project site and freshwater marsh habitat at the east end of the WPIC West Levee Expansion area provide potentially suitable habitat for western pond turtle. Up to approximately 3 acres of potentially suitable aquatic habitat for western pond turtle would be affected, primarily in the mining ponds. Placing levee fill in these areas would affect a very small portion of the approximately 35 acres of mining pond and the extensive Reeds Creek corridor available in the immediate areas and would very slightly reduce aquatic habitat availability for western pond turtle. The edge of the affected portion of the mining ponds supports dense shrubby vegetation and steep cobble slope that provide little opportunity for basking; higher-quality basking habitat occurs in other portions of the ponds. Upland habitat adjacent to these aquatic habitat areas is of very poor quality for nesting due to the cobble substrate in the Goldfields West Levee area and orchard and highway corridor adjacent to the WPIC West Levee Extension area. Suitable aquatic habitat for pond turtles also occurs in the WPIC, but potential work in the canal is anticipated to be limited to repairing areas where the bank has sloughed and would not result in loss of aquatic habitat. If pond turtles occur in the WPIC, they are unlikely to use uplands in the construction area; the levee does not provide

suitable nesting substrate for pond turtles, and turtles are unlikely to traverse it to access landside uplands. In addition, human disturbance is greater on the project site than along most portions of the WPIC, and uplands elsewhere in the WPIC provide much higher quality nesting and hibernation habitat. If individual pond turtles occur in the aquatic habitat areas on or adjacent to the project site when construction begins, they are likely to avoid areas of disturbance, and potential for placing levee fill to result in injury or mortality would be low and limited to a very small number of individuals. Therefore, project construction would not have a substantial impact on the populations that may occupy these areas, and this impact is considered **less than significant**.

The WPIC and rice fields in the WPIC West Levee Extension area are the only portions of the project site that provide suitable aquatic and upland habitat for giant gartersnake. However, there is no evidence that giant gartersnakes occur in the project vicinity, based on lack of detections during extensive surveys on Beale AFB, including in upstream portions of Reeds Creek, which is contiguous with the WPIC portions of the project site. In addition, no individuals were observed during extensive biological surveys and monitoring during construction on previous WPIC improvements in 2016 and 2017. However, the WPIC has not been formally surveyed for giant gartersnake and there is low potential for an unknown population to occur in the lower Reeds Creek/WPIC drainage and adjacent rice fields. Impacts on suitable habitat in the WPIC would include repair of areas along the west canal bank that have sloughed and disturbance of the levee and adjacent maintenance area during levee raising. Approximately 11 acres of rice and 7 acres of adjacent grassland upland habitat within 200 feet would be removed to construct the WPIC West Levee Extension. Construction activities in these areas could result in displacement, injury, or death of individuals if giant gartersnakes are present. Because giant gartersnake populations that may persist in the region are likely relatively small, the death or injury of an individual and permanent loss of suitable upland habitat could reduce the stability, survival, and/or productivity of the local population. Therefore, this impact would be **potentially significant**.

Mitigation Measures: Mitigation Measure 3.5-5 has been identified to address this impact.

Mitigation Measure 3.5-5: Minimize Potential for Death and Injury of Giant Gartersnake and Minimize and Compensate for Permanent Habitat Loss.

TRLIA and its construction contractor(s) will implement the following measures to reduce potential impacts on giant gartersnake during WPIC West Levee improvements and WPIC West Levee Extension construction:

- Impacts on aquatic and upland habitat for giant gartersnake will be avoided wherever possible by considering locations of suitable habitat during development of the final project design, including the levee, maintenance zone, and construction staging areas and access routes.
- Unless specifically authorized by USFWS and DFW, construction activities within 200 feet of aquatic habitat within the WPIC or rice fields in the levee extension area will not begin before May 1. Initial ground disturbance in these areas will be

completed by October 1, and construction activities will be completed as soon thereafter as possible.

- A worker awareness training program will be conducted for all construction personnel before they start work on the project. The program will summarize relevant laws and regulations that protect biological resources and discuss sensitive habitats and species, the role of biological monitors, applicable avoidance and minimization measures to protect species and habitats, and the penalties for not complying with such measures.
- Construction areas will be surveyed for giant gartersnakes by a qualified biologist within 24 hours before on-site project activities begin. Additional surveys will be conducted within 24 hours before initial ground disturbance begins. Surveys will be repeated after any lapse in construction activity of 2 weeks or longer.
- After initial ground disturbance is complete, a biological monitor will conduct weekly inspections of the construction area to ensure that impact avoidance and minimization measures are being implemented properly.
- No snakes will be harassed, harmed, or killed, and they will be allowed to leave the construction area on their own volition. If a possible giant gartersnake is observed retreating into an underground burrow or is otherwise stationary within the construction area, construction activities will not begin or will cease immediately in the reach where the snake is present, the biological monitor will be notified immediately, and appropriate actions will be taken to minimize potential for harm of the snake. USFWS and DFW will be notified immediately to report any giant gartersnake encounters.
- After completion of construction activities, all temporary flagging, fencing, and/or barriers will be removed from the project site. All disturbed soil surfaces will be revegetated during the same construction season that disturbance occurs. Levee slopes, stability berms, fill areas, and other uplands disturbed during project activities will be hydroseeded with a quick-growing and sterile seed mix.
- TRLIA will coordinate with USFWS and DFW to develop and implement an appropriate mitigation strategy to compensate for habitat loss and potential take of giant gartersnake. Mitigation would likely include purchasing created giant gartersnake habitat at a USFWS- and DFW-approved mitigation bank. Appropriate mitigation ratios will be developed during consultation with USFWS and DFW but are anticipated to be based on 3 acres of mitigation habitat for every 1 acre of habitat permanently lost. Mitigation habitat will include aquatic and upland components at a ratio of 2 acres of upland for each acre of aquatic.

Timing: Before and during project construction activities associated with the WPIC West Levee and Extension.

Responsibility: TRLIA.

Significance after Mitigation: Implementing Mitigation Measure 3.5-5 would reduce potentially significant impacts on giant gartersnake because construction personnel would be trained to identify the species and avoid contact, pre-construction surveys and monitoring during construction would be conducted to minimize potential death or injury of individuals, and permanent habitat loss would be minimized and compensated. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-6: Impacts on Special-status Birds

The project site and adjacent areas provide suitable nesting and/or foraging habitat for Swainson's hawk, white-tailed kite, northern harrier, western yellow-billed cuckoo, burrowing owl, loggerhead shrike, bank swallow, the Modesto population of song sparrow, and tricolored blackbird. Improvements to existing levees would temporarily disturb approximately 215 acres of grassland that provides poor-quality foraging habitat for several of these species, due to regular maintenance activities, including control of burrowing mammals. Grassland in the Goldfields West Levee portion of the project site is also of poor quality, due to the cobble substrate. Impacts on higher quality foraging habitat would be limited to approximately 15 acres in the WPIC West Levee Extension portion of the project site. Because this represents a small fraction of similar contiguous grassland on the parcel and on the other side of SR 70, this loss of foraging habitat would have a minor impact on foraging habitat availability and would not substantially affect the species that use it.

Up to approximately 6 acres of riparian habitat dominated by shrubby vegetation and small trees and with scattered large trees would be removed in the Goldfields West Levee portion of the project site, and less than 1 acre would be removed at the east end of the WPIC West Levee Extension area. These areas provide suitable habitat for all of the tree- and riparian-nesting special-status birds, except western yellow-billed cuckoo. Riparian habitat on and immediately adjacent to the project site is not suitable nesting habitat for western yellow-billed cuckoo. The project site also does not provide suitable nesting habitat for bank swallow and very poor nesting habitat for tricolored blackbird. In addition, most of the trees on the project site are too small to provide suitable nest sites for Swainson's hawk and white-tailed kite, and no nests of either species have been previously documented on the project site. Grassland in the WPIC West Levee Extension portion of the project site may provide suitable nesting habitat for northern harrier and burrows for burrowing owl, but burrowing owl has low potential to use this area given the lack of observations of this species in the project area, despite extensive past surveys. Although riparian habitat along the rivers and creeks in the project area and grassland habitat in the intervening areas has been greatly diminished over time, relatively extensive areas of these habitats persist in the local area and larger region. Therefore, removing this relatively small amount of potential nesting habitat would have a minor impact relative to the total amount of habitat that would continue to be available in the Goldfields and along Reeds Creek and adjacent areas, as well as extensive areas along the local rivers. Therefore, loss of potential nesting habitat for special-status birds would be a **less-than-significant** impact.

Construction activities could destroy active nests or occupied burrowing owl burrows and injure or kill associated individuals, if present during construction. In addition, if active nests or occupied burrows are present in or near the construction areas, project-related disturbance (i.e., noise and visual disturbance) could result nest abandonment, reduced care of eggs or young, or premature fledging. Failure of active nests of special-status birds could have a substantial adverse effect on the local population, depending on the species and the number of individuals affected. Therefore, this would be a **potentially significant** impact. Destruction of active bird nests also would violate the MBTA and FGC Sections 3503 and 3503.5

Mitigation Measures: Mitigation Measures 3.5-6a and 3.5-6b have been identified to address these impacts on nesting special-status birds and would also avoid violation of the MBTA and FGC Sections 3503 and 3503.5.

Mitigation Measure 3.5-6a: Conduct Focused Surveys for Burrowing Owls and Avoid Loss of Occupied Burrows and Failure of Active Nests.

To minimize potential effects of project construction and maintenance on burrowing owl, TRLIA will ensure that the following measures are implemented, consistent with the *Staff Report on Burrowing Owl Mitigation* (DFG 2012).

- A qualified biologist will conduct focused surveys for burrowing owls, in accordance with Appendix D of the *Staff Report on Burrowing Owl Mitigation* (DFG 2012). At a minimum, surveys will be conducted during the breeding season of the year in which ground-disturbing project activities begin, and one survey will be conducted within 10 days before on-site project construction or maintenance activities begin.
- If occupied burrows are observed, protective buffers will be established and implemented. A qualified biologist will determine the appropriate buffer for each occupied burrow; the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the owl(s) to disturbance. A qualified biologist will monitor the occupied burrows during project activities and adjust buffers, if needed, to ensure their effectiveness.
- If it is not feasible to implement a buffer of adequate size and it is determined, in consultation with DFW, that passive exclusion of owls from the area of direct disturbance is an appropriate means of minimizing impacts, an exclusion and passive relocation plan will be developed and implemented in coordination with DFW. Passive exclusion will not be conducted during the breeding season (February 1 – August 31), unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- If passive exclusion is conducted, each occupied burrow that is destroyed will be replaced with at least one artificial burrow on a suitable portion of the project site, or elsewhere on TRLIA-owned land that provides suitable burrowing owl habitat, that

will not be subject to project impacts or maintenance activities that could have adverse effects on burrowing owl.

Timing: Before, during, and after construction activities.

Responsibility: TRLIA.

Mitigation Measure 3.5-6b: Conduct Focused Surveys for Nesting Birds and Implement Buffers Around Active Nests.

To minimize potential effects of project construction and maintenance on special-status birds and avoid violation of the MBTA and FGC, TRLIA will ensure that the following measures are implemented:

- If construction activity would begin during the bird nesting season (February 1 – September 15), a survey for active bird nests will be conducted by a qualified biologist. The survey will cover all potential on-site and off-site nesting habitat within 500 feet of the construction footprint. The survey will be conducted no more than 14 days before the start of project activities. If a lapse in project-related activities of 14 days or longer occurs, another focused survey is required before project activities can be reinitiated.
- If any active nests are found, a qualified biologist will prepare a site-specific take avoidance plan to comply with the FGC. Measures may include but are not limited to nest-specific no-disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the species' line of sight from the nest tree. The avoidance/protection measures will be implemented before construction activities begin within 500 feet of an identified nest and continue until the nest is no longer active.
- If construction activity would begin during the Swainson's hawk nesting season (March 15 – August 31), focused surveys for active Swainson's hawk nests will be conducted within 0.5 mile of the project site by a qualified biologist, in accordance with *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). To meet the minimum level of protection for the species, surveys will be completed for the two survey periods immediately before construction activities begin. If a lapse in project-related activities of 14 days or longer occurs, another focused survey is required before project activities can be reinitiated.
- If an active Swainson's hawk nest is found, a qualified biologist will prepare a site-specific take avoidance plan that includes measures to comply with CESA and the FGC. Measures may include but are not limited to nest-specific no disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the species' line of sight from the nest tree. The

avoidance/protection measures will be implemented before construction activities begin and continue until the birds are no longer reliant on the nest site.

- If construction activity would begin during the white-tailed kite nesting season (March 1 – August 31), a focused survey for active white-tailed kite nests will be conducted by a qualified biologist. The survey will cover all potential on-site and off-site nesting habitat within 0.25 mile of the project site. The survey will be conducted no more than 14 days before the start of project activities. If a lapse in project-related activities of 14 days or longer occurs, another focused survey is required before project activities can be reinitiated.
- If an active white-tailed kite nest is found, a qualified biologist will prepare a site-specific take avoidance plan that includes measures to comply with the FGC. Measures may include but are not limited to nest-specific no disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the species' line of sight from the nest tree. The avoidance/protection measures will be implemented before construction activities begin and continue until the birds are no longer reliant on the nest site.

Timing: Before and during construction activities.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measures 3.5-6a and 3.5-6b would reduce potentially significant impacts on special-status birds to a less-than-significant level because pre-construction nest surveys would be conducted, buffers would be implemented to avoid project-related failure of occupied burrows and active nests, and replacement burrows would be provided if recently occupied burrowing owl burrows are destroyed. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-7: Impacts on Special-status Mammals

Riparian trees and walnut orchard on the project site provide poor-quality roosting habitat for western red bat, which favors wide riparian corridors dominated by mature trees. Higher quality roosting habitat occurs adjacent to site, in portions of the Goldfields that support more extensive forested areas and along the Bear and Feather rivers. Riparian vegetation that would be removed supports very few mature trees; this habitat is unlikely to be used by western red bat for roosting and especially unlikely to support maternity roosts. The project site is also very unlikely to provide suitable roosting habitat for pallid bat, which favors mines, rock crevices, and artificial structures. Both of these species could forage over the project site, if suitable roost sites are present nearby, but project implementation would not disrupt foraging activities. Because only a small amount of poor-quality roosting habitat for western red bat would be removed and few, if any, individuals would be affected, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact 3.5-8: Impacts on Sensitive Habitat

Up to approximately 6 acres of riparian habitat would be removed during project construction. Nearly all of this habitat occurs in the Goldfields, where it is not directly associated with a natural waterway or other natural aquatic feature subject to jurisdiction under Section 1602 of the FGC, and its quality is considered low because there are few mature trees and limited species and structural diversity. Riparian habitat at the east end of the WPIC West Levee Extension area also is of marginal quality because of its location along a suburban stream and immediately adjacent to a major highway. However, both of these areas support a similar, though less diverse, assortment of native trees typically found along river systems in the Central Valley and provides some benefits of naturally occurring riparian forest, including habitat for a variety of wildlife species. Therefore, loss of riparian habitat would be a **potentially significant** impact.

Up to 2 acres of potential seasonal wetland habitat that could support hardpan vernal pools would be removed by constructing the WPIC West Levee Extension. The current extent and characteristics of potential wetlands in this area is unknown because it was not accessible and could not be examined during field surveys. Therefore, this potential impact cannot be fully determined until the area is surveyed and a habitat assessment is completed. Because vernal pools are a unique and threatened natural resource, loss of vernal pools is considered a **potentially significant** impact.

Mitigation Measures: Mitigation Measure 3.5-2 would address this impact, and Mitigation Measure 3.5-8 has been identified to address this impact.

Mitigation Measure 3.5-2: Minimize Impacts on Federally Listed Vernal Pool Invertebrates and Compensate for Unavoidable Impacts.

Please *refer to* Mitigation Measure 3.5-2 in Impact 3.5-2 above for full text of this mitigation measure.

Mitigation Measure 3.5-8: Minimize and Compensate for Loss of Sensitive Natural Communities.

TRLIA and its construction contractor(s) will implement the following measures to reduce effects of the project alternatives on sensitive habitats:

- Impacts on riparian habitat will be avoided wherever possible by considering locations of riparian vegetation during development of the final project design, including the levees, maintenance zones, and construction staging areas and access routes. A fenced, 50-foot protective buffer will be erected and maintained during construction when feasible to minimize impacts on riparian habitat that will be preserved adjacent to the construction footprint.
- Unavoidable impacts on riparian habitat will be compensated at a minimum 1:1 replacement ratio based on the acreage removed to ensure no net permanent loss. Compensation may occur through purchase of credits from a mitigation bank or

through installation, monitoring, maintenance, and preservation of replacement plantings onsite or at an appropriate location in the watershed.

- If vernal pools are not determined to provide suitable habitat for vernal pool crustaceans and compensation measures described in Mitigation Measure 3.5-1 do not apply, loss of vernal pools will be compensated at a 1:1 replacement ratio, based on the acreage removed. Compensation for loss of vernal pools will likely occur through the purchase of credits from a mitigation bank.
- A mitigation plan will be prepared and implemented detailing how the loss of riparian and/or vernal pool habitats that cannot be avoided will be compensated. The mitigation plan will describe compensation ratios for acres lost, mitigation sites, a monitoring protocol, annual performance standards and final success criteria for created or restored habitats, and corrective measures to be applied if performance standards are not met.
- If mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan. Specifically, the plan will list responsible parties for long-term management, conservation easement holders, and long-term management requirements as appropriate to ensure long-term habitat viability and protection.

Timing: Before ground-disturbing activities in or adjacent to vernal pools or areas containing riparian vegetation.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measures 3.5-1 and 3.5-8 would reduce the potentially significant impact associated with loss of riparian habitat and vernal pool habitat because it would minimize adverse impacts on these habitats and compensate for unavoidable impacts. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-9: Impacts on Federally and State-Protected Waters

Federally and/or State-protected waters on the project site are anticipated to include the WPIC and riverine habitat and seasonal wetlands in the WPIC West Levee Extension portion of the project site. Potential impacts on the WPIC are anticipated to be limited to repairing areas where the bank has sloughed and would result in very minor, if any, fill of waters. Such bank improvements would not have a substantial adverse effect on waters in the WPIC and would be a less-than-significant impact. Constructing the WPIC West Levee Extension, however, would result in fill of approximately 2 acres of potential seasonal wetland habitat and approximately 0.25 acre of riverine habitat and could result in indirect impacts on adjacent waters. The actual extent of waters of the United States and waters of the State on the project site cannot be determined until a formal wetland delineation is completed. Based on the estimated potential impacts, fill of jurisdictional waters in the WPIC West Levee Extension portion of the project site would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measure 3.5-9 has been identified to address this impact, and Mitigation Measures 3.8-2 and 3.10-1 also would address this impact.

Mitigation Measure 3.5-9: Minimize and Compensate for Loss of Federally or State-Protected Wetlands.

TRLIA and its construction contractor(s) will implement the following measures to reduce effects on Federally and State-protected wetlands:

- A delineation of waters of the United States will be conducted according to methods established in the USACE wetlands delineation manual (Environmental Laboratory 1987) and Arid West Supplement (Environmental Laboratory 2008). The delineation will map and quantify the acreage of all jurisdictional habitats on the project site and will be submitted to USACE for verification. The delineation also will identify waters of the State.
- Impacts on wetlands in grasslands of the eastern portion of the Alternative 4 footprint will be avoided or minimized wherever feasible by considering the locations of seasonal wetlands during development of the final project footprint, including the levee and construction staging areas and access roads. Protective fencing will be erected and maintained to minimize impacts on seasonal wetlands that will be preserved adjacent to the construction footprint.
- Impacts on jurisdictional waters will be avoided wherever possible by considering locations of waters during development of the final project design, including the levees, maintenance zones, and construction staging areas and access routes.
- If impacts on waters of the United States cannot be avoided, a permit will be obtained from USACE under CWA Section 404 and Section 401 certification will be obtained from the CVRWQB, if required. All requirements of any permits obtained will be implemented.
- Unavoidable permanent fill will be replaced or restored on a “no-net-loss” basis. The specific acreages, locations, and methods used for such replacement or restoration will be agreeable to USACE and the CVRWQCB (depending on agency jurisdiction), as determined during the Section 401 and Section 404 permitting processes, respectively, if applicable. Compensation for loss of seasonal wetlands and freshwater marsh will likely occur through the purchase of credits from a USACE-approved mitigation bank.
- If waters of the United States will be filled, a wetland mitigation plan will be prepared and implemented detailing how the loss of aquatic functions will be replaced. The mitigation plan will describe compensation ratios for acres filled. If mitigation credits are not available, the plan will also describe mitigation sites, a monitoring protocol, annual performance standards, and final success criteria for created or restored habitats, and corrective measures to be applied if performance standards are not met.

- If mitigation includes the dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan. Specifically, the plan will list responsible parties for long-term management, conservation easement holders, and long-term management requirements as appropriate to provide long-term habitat viability and protection.

Timing: Before start of WPIC West Levee Extension construction activities.

Responsibility: TRLIA and its construction contractor(s).

Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion.

Please *see* Mitigation Measure 3.8-2 in Impact 3.8-2 of Section 3.8, “Geology, Soils, and Paleontological Resources,” for full text of this mitigation measure.

Mitigation Measure 3.10-1: Implement a Spill Prevention Control and Countermeasures Plan and Other Measures to Reduce the Potential for Environmental Contamination during Construction Activities.

Please *refer to* Mitigation Measure 3.10-1 in Impact 3.10-1 of Section 3.10, “Hazards and Hazardous Materials,” for full text of this mitigation measure.

Significance after Mitigation: Implementing Mitigation Measures 3.5-9, 3.8-2, and 3.10-1 would reduce potentially significant impacts associated with fill and/or degradation of Federally and/or State protected waters of the United States because it would minimize adverse impacts on jurisdictional waters and would ensure that compensation on a no-net-loss basis would occur for permanent fill of jurisdictional waters. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.5-10: Impacts on Fish and Wildlife Movement Corridors and Nursery Sites

A wildlife corridor is generally a topographical or landscape feature or movement area that connects two areas of habitat that otherwise would be entirely fragmented or isolated from one another. The project site is part of a much larger extent of residential development, agricultural land, grassland, and river and creek corridors. The project site does not serve as a corridor between isolated habitat areas. Areas adjacent to the project site may facilitate local movement of common terrestrial and aquatic species, but project activities would not substantially interfere with the movement of native wildlife because activities would be limited to a small proportion of the overall corridor width and would not substantially impede upstream or downstream wildlife movement. The project site also does not support important nursery sites. Because implementing the proposed project would not substantially interfere with fish or wildlife migration or movement or impeded use of a wildlife nursery site, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

All impacts on biological resources would be less than significant or would be reduced to a less-than-significant level with mitigation, or no impact would occur, as described above. There would be no residual significant impacts.

3.6 Cultural Resources

This section describes the pre-historic, ethnographic, and historic cultural resources settings; summarizes applicable regulations; analyzes potential project impacts on cultural resources; and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level. Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. CEQA defines an “historical resource” as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR).

Tribal Cultural Resources (TCRs) are specifically addressed in Section 3.17.

3.6.1 Environmental Setting

Prehistoric Setting

The Central Valley has been the subject of archaeological inquiry for more than 100 years. The following background discussion reviews the Central California Taxonomic System and development of a modern chronology for central California. This is followed by a general overview of Central Valley prehistory, organized into three main periods: Paleo-Indian, Archaic, and Emergent.

Lillard et al. (1939) recognized three sequential archaeological “cultures” based on stratigraphic patterns and a relatively detailed analysis of grave accompaniments the Early Period, the Transitional Period, and the Late Period. Their study also resulted in the first formal artifact typologies for the region, including classifications for ground stone, projectile points, and more importantly for chronological purposes, shell beads. The periods were later redefined as cultural “horizons.”

Richard Beardsley (1948, 1954) further refined the Central Valley sequence described by Lillard et al. (1939) and extended the taxonomic system of cultural horizons to include archaeological manifestations recognized to the west, across the San Francisco Bay area. Beardsley found no evidence for the Early Period culture around San Francisco Bay and argued that Middle Horizon and Late Horizon cultures extended from the coast to the Central Valley; however, he warned that these assemblages might not be temporally equivalent across all central California. Beardsley’s revised classification ultimately came to be called the Central California Taxonomic System.

Lower Archaic Period (10,500–7,000 Years Before Present)

Although well-preserved Lower Archaic archaeological deposits are rare in the Central Valley, considerably more is known about the nature of human occupation during this time than during the preceding latest Pleistocene. The first appearance of milling tools and diverse faunal and floral assemblages from early Holocene deposits reflects broad-spectrum economies, characteristic of Archaic adaptations throughout North America.

Perhaps the most significant characteristic of post-Pleistocene economies in cismontane California is a clear reliance on plant foods. Milling tools are one of the most reported artifact classes from Lower Archaic sites on the fringes of the Central Valley (Meyer and Rosenthal 1997) and elsewhere in central California. Exclusive use of handstones and milling slabs, along with other cobble-based pounding, chopping, and scraping tools is characteristic of assemblages from this time period. Beginning as early as 10,500 years Before Present (B.P.), this assemblage of expedient tools becomes the predominant extractive and processing technology employed from coastal California to the uplands of the North Coast Ranges and Sierra Nevada (White et al. 2002).

Middle Archaic Period (7,000–2,500 Years Before Present)

The beginning of the Middle Archaic (circa 7,000 B.P.) in central California is marked by a substantial change in climate, with warmer and drier conditions prevailing throughout the region. Although conditions were generally arid, significant new wetland habitats were forming in the Central Valley as sea level rise was forcing development of the Sacramento–San Joaquin Delta and associated marshlands.

Use of the mortar and pestle in the Sacramento Valley and adjacent lowlands was likely part of an increased technological investment associated with a shift toward greater residential stability that occurred around the emerging freshwater marshes of the Sacramento–San Joaquin Delta region (e.g., San Joaquin County archaeological site CA-SJO-68) and other well-watered riparian ecosystems (e.g., Contra Costa County archaeological site CA-CCO-548). This settlement focus was likely facilitated by the aggregation of economically important plants and animals concentrated spatially but dispersed seasonally (Jones 1991).

Evidence of increasing residential stability in the Central Valley circa 5,000 B.P. is best represented by the Windmill Tradition. The earliest of these settlements, identified at CA-SJO-68, is among the first sites in central California to include large cemetery populations, specialized tool assemblages, and an abundance of nonutilitarian items. Included are large numbers of well-made “charmstones” (ground stone plummets), the earliest shaped Olivella (sea snail) wall-beads, Haliotis (abalone) ornaments, and other decorative items (Heizer 1949; Ragir 1972; Moratto 1984). As part of the economic intensification thought to have accompanied a more sedentary lifestyle (Bouey 1995), fishing may have taken on new importance in the Central Valley. Specialized fishing gear and fish remains are first represented in assemblages dating to the middle Holocene (Ragir 1972; White 2003).

Upper Archaic Period (2,500–800 Years Before Present)

Evidence of Upper Archaic human occupation in the Central Valley is extensive, particularly for the last 2,000 years. Cultural diversity that first became apparent in the Middle Archaic becomes much more pronounced in the Upper Archaic.

Groups that occupied the lowland valleys of central California appear to have lived in comparatively high-density villages, used a broad range of specialized technologies, and worked

logistically from permanent or semi-permanent settlements to obtain resource surpluses for storage and exchange.

No later than 4,000 B.P., residentially stable communities had emerged throughout the Sacramento Valley along the lower stretches of Sierran rivers. Evidence of these communities includes large, mounded settlements and smaller satellite villages found on levee ridges and other elevated landforms along the major rivers and tributary streams (Lillard et al. 1939; Heizer 1949; Ragir 1972; Moratto 1984; Bouey 1995). Extended residential occupation is indicated by the presence of well-developed midden, often containing hundreds of human graves, storage pits, structural remnants, and other types of domestic features (e.g., hearths and ash dumps), as well as seasonally diverse faunal and floral remains (Lillard et al. 1939; Moratto 1984; Bouey 1995; White et al. 2002; White 2003). Most residential sites dating to the Upper Archaic include large quantities of fish bone and fishing implements, as well as a diverse assortment of mammal and bird remains. Fishing gear (e.g., harpoons, hooks, net weights, mesh gauges), hunting-related equipment (e.g., projectile points, atlatl spurs, bone “shaft wrenches”), wood-working tools (e.g., elk antler wedges), and tools used to fabricate other implements (e.g., bone awls, stone drills) are common in Upper Archaic settlements from the Sacramento Valley.

Emergent Period (800 Years Before Present–Euro-American Contact)

A wholesale shift in material culture is evident after about 800 years ago, marking the beginning of the Emergent or Late Prehistoric Period in the Central Valley. In the Sacramento Valley, large villages developed along the Sacramento River where fish weirs were constructed. Similar mound-villages and smaller hamlets were established in the Sacramento–San Joaquin Delta region and along major tributary streams. Fishing appears to have taken on a more important role in lowland economies, as fish remains and fishing gear are more abundant than in earlier periods, including several types of bone harpoons, fishhooks, and gorge hooks (Moratto 1984). Most residential sites dating to this time period also include high quantities of large- and small-mammal bone, as well as abundant remains of waterbirds. Important shifts in material culture and technology are evident beginning in the Late Prehistoric Period and include a local form of pottery known as Cosumnes Brownware and baked-clay balls, probably used for cooking. Other items, including stone pipes, incised bone tubes, and ear spools, are diagnostic of this period (Bennyhoff and Fredrickson 1994).

Of particular interest is the introduction of the bow and arrow, which replaced the dart and atlatl in different portions of central California between about 1100 and 700 B.P. In the lower Sacramento Valley, however, the bow and arrow appear to have first been employed several hundred years earlier, based on the occurrence of Gunther-barbed arrow points in well-dated burial contexts in Sacramento and Butte counties. Radiocarbon dates from CA-SAC-21, CA-BUT-496, and CA-BUT-584 suggest that these points were introduced no later than about 975 B.P. (Meyer and Rosenthal 2008).

Sometime after about 800 years ago, a significant change in obsidian production and exchange is recognized throughout central California. In the northern San Joaquin Valley, for example, this

change is identified through shifts in obsidian source frequencies. Napa Valley obsidian becomes the primary source material used in this region (Jackson 1974); supplanting material obtained from eastern quarries. Haliotis ornaments and large quantities of shell beads manufactured in southern California and along the central and northern California coast are found in residential sites throughout the Sacramento Valley and lower foothills of the Sierra Nevada and Coast Ranges. In the Central Valley, bead-making evidence is found only in a circumscribed region of the western Sacramento Valley, although clam shell disk beads occur widely throughout the valley and adjacent foothills.

Ethnographic Setting

The project site is situated in the homeland of the Nisenan or Southern Maidu, and other Maidu tribes. The site is in the area of contact between the Nisenan to the south and other Maidu tribes to the north, who spoke a different dialect and had distinct cultural practices. The language of the Nisenan and other Maidu tribes inhabiting this area, which includes several dialects, is classified within the Mauduan family of the Penutian linguistic stock (Kroeber 1925). Nisenan territory includes the drainages of the Yuba, Bear, and American rivers, and parts of the Feather River, between the Sacramento River, to the west, and the crest of the Sierra Nevada (Wilson and Towne 1978). Major village sites, known during the ethnographic period, were located along the rivers and near the foothills, whereas the river plain was used by several Nisenan groups for hunting game and gathering resources (Wilson and Towne 1978).

Valley Nisenan people followed a seasonal round of food gathering, as did most California Indians. The wide variety of food resources available was exploited year-round but hunting and gathering activities were at their most intense in late summer and early fall. Food staples included acorns, buckeyes, pine nuts, hazelnuts, various roots, seeds, mushrooms, greens, berries, and herbs. Game, roasted, baked, or dried, included mule deer, elk, antelope, black bear, beaver, squirrels, rabbits, and other small animals and insects. Salmon, whitefish, sturgeon, suckers, and freshwater shellfish were part of the diet (Wilson and Towne 1978).

Trade was an important practice for the Valley Nisenan, who exported dried fish, roots, grasses, shells, beads, salt, and feathers. They imported black oak acorns, pine nuts, manzanita berries, skins, bows, bow wood, and obsidian from the Hill Nisenan to the east, and they imported shell, magnesite, steatite, and obsidian from the Patwin and Konkow to the west (Wilson and Towne 1978).

Nisenan houses were domed structures covered with earth and tule or grass and measured 10 to 15 feet in diameter, organized within villages of just a few homes to as many as fifty households. Brush shelters were used in the summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses that were covered in earth and tule or brush and had a central smoke hole at the top and an east-facing entrance. Sweathouse construction was similar to the dance houses, but much smaller. Acorn granaries were common structures in villages, allowing long-term storage of food resources. Bedrock mortars, used for

acorn processing, were also often located near villages. Petroglyphs are found in the foothills, including dots, lines, geometric, and curvilinear forms (Wilson and Towne 1978).

Euro-American contact with the Nisenan began with infrequent excursions by Spanish explorers and Hudson Bay Company trappers traveling through the Sacramento-San Joaquin Valley in the early 1800s. An epidemic in 1833, likely malaria, killed as many as 75 percent of the Valley Nisenan population, with survivors retreating to the hills (Wilson and Towne 1978). During the mid-19th century, the discovery of gold in the foothills led to further displacement, discrimination, and persecution of the Nisenan. In the last few decades of the 19th century, new inter-tribal alliances were strengthened with the Ghost Dance revival (Du Bois 1939).

Historic Setting

Early Settlement

European influence began in the project vicinity as early as 1808, when Gabriel Moraga led an expedition from Mission San Jose up to the Cosumnes and Feather rivers (Beck and Haase 1974). Captain John Augustus Sutter settled in the Sacramento Valley in 1841. It was not until the discovery of gold in 1848, that immigrants flooded into Yuba County. Sutter's considerable land claim covered most of what would become Sacramento and Placer counties, all of Sutter County, the valley portion of Yuba County, and a small part of Colusa County. Sutter sold numerous tracts of land to settlers, including tracts in the vicinity of the project site. The region offered fertile land for settlers encouraged by the proximity of Sutter's settlements. The initial discovery of gold in what is now Yuba County was made by Jonas Specht in June 1848 at Rose Bar, a sand and gravel bar in the Yuba River approximately 18 miles east of Marysville. Nearly simultaneous with Specht's strike, Michael Nye and William Foster found gold-bearing areas on Dry Creek near its confluence with the Yuba River (Hoover et al. 1990).

In 1850, locals established the township of Marysville. Marysville witnessed tremendous growth because of its proximity to the gold-bearing placers. Apart from this community, there was little other development in the area. By the early 20th century, with the introduction of the gold dredging process, mining boomed along the Yuba River. Wendell P. Hammon was a pioneer in California dredge mining and spearheaded the mining technique in the Goldfields. By 1902, he became interested in the Yuba River in what is presently the Goldfields. His dredging activities became the first successful gold dredging operations in the State. He eventually gained control of over 1,000 acres of land east of Marysville, which marked the beginning of the largest gold dredging district in the Western Hemisphere at the time. After initially facing several challenges, Hammon incorporated as the Yuba Consolidated Goldfields and filed a mining claim near the Yuba River, where he constructed his first two dredges. By 1908, several dredges operated in the Goldfields. In the 1950s, Yuba Consolidated Goldfields expanded its holdings. Dredging activity during the 1950s and 1960s rerouted the Yuba River channel to the north, which is its current location. Yuba Consolidated Goldfields remained profitable throughout most of the 20th century and ended operations in 1968. (Barnes 2003.)

Flood Management

The California Legislature attempted to coordinate a levee system and to control levee construction by creating the Swamp Land Commission in 1861. This gave California drainage districts the power to construct levees. It would become the responsibility of State engineers to design the levees for each district (Office of Board of Swamp Land Commissioners 1861). By the end of 1861, there were 28 drainage districts in the Sacramento and San Joaquin valleys and the San Francisco Bay-Delta. The California Legislature enhanced the levee district powers in 1864, which spurred additional levee construction (O'Neill 2006a).

California's first State engineer, William Hammond Hall, and engineer Marsden Manson conducted an intensive survey of the Sacramento River between 1878 and 1880. Part of the focus of the study was the impacts of flooding caused by hydraulic mining debris in the river. At the time, the Yuba River drained the most active hydraulic mining in the region and the tremendous quantity of debris resulted in a dramatic rise in the riverbed. In addition, the flooding and debris affected the agricultural land in the area, causing it to be unsuitable for farming and planting (Kelley 1989; O'Neill 2006b). In 1905, Captain Thomas Jackson arrived in California and undertook a comprehensive flood management plan for the Sacramento Valley. In 1910, Jackson's report, known as the Jackson Report, became the foundation for the Sacramento River Flood Control Project (SRFCP). One year later, the California Debris Commission designed a flood control plan that was more comprehensive than simply constructing levees (O'Neill 2006a). Subsequent lobbying efforts resulted in the 1917 Federal Flood Control Act, which required USACE to work with State government and local levee districts and provided funds to construct flood control facilities on the Sacramento River (O'Neill 2006a). The SRFCP began in 1918 and marked the first expansive flood control efforts on the Sacramento River and the first-time funds were appropriated for the specific purpose of flood control (Arnold 1988). The act was modified several times over the years. By 1944, the SRFCP was nearly 90 percent complete and an estimated 980 miles of levees were constructed (Kelley 1989).

3.6.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

National Historic Preservation Act Section 106

The proposed levee improvements are expected to require USACE approval and would therefore be considered a Federal undertaking that must adhere to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 requires Federal agencies and entities that these agencies fund or permit to consider the effects of their actions on properties that are listed in the National Register of Historic Places (NRHP), or that may be eligible for such listing. To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, locations of sacred importance to Native Americans, historical, and architectural properties) must be inventoried and evaluated.

The Section 106 review process consists of four steps:

1. Initiate the Section 106 process by establishing the undertaking, developing a plan for the public involvement, and identifying other consulting parties
2. Identify historic properties (resources that are eligible for inclusion in the NRHP by determining the scope of efforts, identifying cultural resources within the area potentially affected by the project, and evaluating properties' eligibility for NRHP inclusion
3. Assess adverse effects by applying the Section 106 criteria of adverse effect to identified historic properties
4. Resolve adverse effects by consulting with the State Historic Preservation Officer and other consulting agencies, including the Advisory Council on Historic Preservation (ACHP) if necessary, to develop an agreement that addresses the treatment of historic properties

National Register of Historic Places Evaluation Criteria

The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service, in consultation with the State Historic Preservation Officer. The NRHP includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the Federal, State, or local level. The NRHP criteria and associated definitions are outlined in the National Register Bulletin: How to Apply the National Register Criteria for Evaluation (NPS 1997). The following is a summary of that bulletin.

Properties (structures, sites, buildings, districts, and objects) more than 50 years of age can be listed in the NRHP provided they meet one of the evaluation criteria described below; however, properties less than 50 years of age that are of exceptional significance or are contributors to a district, that also meet the evaluation criteria, can be included in the NRHP.

The NRHP uses the following four criteria under which a property can be considered significant for listing:

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

Properties can be listed individually or as contributors to a historic district. In addition to meeting one of the evaluation criteria, a property must also retain integrity to convey that significance.

Although the evaluation of integrity is sometimes subject to judgement, it must always be grounded in an understanding of the property's physical features and how they relate to its significance.

The NRHP recognizes seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

State Plans, Policies, Regulations, and Laws

California Register of Historic Resources

The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California Historical Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC Section 5024.1, 14 CCR Section 4850). The eligibility criteria for listing in the CRHR are similar to those for NRHP listing but focus on the importance of the resources to California history and heritage. A cultural resource may be eligible for listing on the CRHR if it meets any of the following criteria:

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

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

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person

In addition to meeting one or more of the above criteria, resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as

historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (Office of Historic Preservation 1999). These regulations apply to the eligibility determination of cultural resources in the project's area of potential effects.

Discovery of Human Remains

Section 7050.5 of the HSC states the following regarding the discovery of human remains:

- A. Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. The provisions of this subdivision shall not apply to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the PRC or to any person authorized to implement Section 5097.98 of the PRC.
- B. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the California Government Code, that the remains are not subject to the provisions of Section 27491 of the Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the PRC. The coroner shall make his or her determination within 2 working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.
- C. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) (HSC Section 7050.5).
- D. Of particular note to cultural resources is subsection (c), which requires the coroner to contact the NAHC within 24 hours if discovered human remains are determined to be Native American in origin. After notification, NAHC will follow the procedures outlined in PRC Section 5097.98, which include notification of most likely descendant(s) (MLD), if possible, and recommendations for treatment of the remains. The MLD will have 24 hours after notification by the NAHC to make their recommendation (PRC Section 5097.98). In addition, knowing or willful possession of Native American human remains or artifacts taken from a grave or cairn is a felony under State law (PRC Section 5097.99).

Local Plans, Policies, Regulations, and Ordinances

Yuba County 2030 General Plan

The following goal and policies from the Yuba County 2030 General Plan Natural Resources Element, related to cultural resources, are relevant to the proposed project (Yuba County 2011).

GOAL NR 6: Cultural Resources. Identify, protect, preserve Yuba County's important prehistoric and historic resources.

- **Policy NR 6.1.** The County will require environmental assessment and mitigation to reduce or avoid impacts to significant cultural resources, as feasible, per State and Federal legislation and regulations.
- **Policy NR 6.2.** If potential paleontological or prehistoric resources are detected during construction, work shall stop, and consultation is required to avoid further impacts.
- **Policy NR 6.3.** New developments, roads, water and sewer lines, and stormwater infrastructure should be located to avoid impacts to significant cultural resources.
- **Policy NR 6.4.** The County will encourage adaptive reuse of historic structures in a way that maintains the character defining elements of the historic structure.
- **Policy NR 6.5.** Priority investment should go to preserving or rehabilitating historic structures that are grouped in close proximity, are particularly good examples of a specific architectural style, or are associated with important people or events in the County's history.
- **Policy NR 6.6.** The County will disseminate information to property owners regarding tax incentives and other Federal and State programs that support the rehabilitation of historic structures.

Yuba County Municipal Code

The most recent Yuba County Municipal Code was updated in 2018. It contains 11.44.060. - Protection of natural and cultural resources. A single paragraph relates to cultural resources:

Sensitive habitat areas, archeological resources, and designated and potential historic resources shall be shown and identified on all tentative maps, and on any improvement and landscape plans. Such features shall be preserved as required by the Development Review Committee or Planning Commission as part of tentative map approval.

3.6.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The significance criteria used to evaluate the project impacts are based on Appendix G of the State CEQA Guidelines. A significant impact related to cultural resources would occur if the proposed project would result in any of the following:

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

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5
- Disturb any human remains, including those interred outside of formal cemeteries

Analysis Methodology

Records Search and Archival Research

GEI requested two electronic searches of the North Central Information Center (NCIC) Geographic Information System to identify reported resources and previous investigations on or near the project site. The second record search was supplemental, to account for the addition of work along the Feather River East Levee. The records search results (File Numbers YUB-21-25 and YUB-21-37) identified four built environment resources on the project sites and 24 reports that address a portion of the project site.

GEI’s architectural historians conducted primary and secondary research to identify historic trends and individuals pertaining to the project area. Research included examining relevant documents and reports, as well as historic aerials and maps.

Table 3.6-1 summarizes information regarding the previously identified resources documented in the records search. The Feather River Levee, Linda Levee, and RD 784 Ditch were previously evaluated for NRHP significance and determined to not meet eligibility requirements because of a lack of historical significance and/or integrity.

Table 3.6-1. Previously Identified Cultural Resources on the Project Site

Resource Number	Trinomial	Name	Age	Description	Eligibility Status
P-58-001368	None	RD 784 Ditch	Historic era	Canal/aqueduct	Not Eligible
P-58-001369	CA-YUB-1443H	Feather River Levee (private levee)	Historic era	Levee	Not Eligible
P-58-001620	CA-YUB-1442	Linda Levee	Historic era	Levee	Not Eligible

Source: North Central Information Center 2021

Four historic-era built environment resources (RD 784 Ditch, Feather River Levee, Linda Levee, and the Bear River Levee) were inventoried as part of the field survey. Except for the Bear River Levee, the resources were previously evaluated for NRHP eligibility and found not to meet the criteria. The Bear River Levee was inventoried and evaluated for NRHP significance for the purposes of this project and is recommended as not meeting eligibility requirements because of a lack of integrity. The Goldfields West Levee portion of the project site slightly overlaps the approximately 10,000-acre Yuba Goldfields Historic Mining District (Historic District). For the purposes of this analysis, the Historic District is assumed to be eligible for NRHP listing for its association with the dredging industry and is also considered a historical resource for the purposes of CEQA.

Field Survey

An intensive standard pedestrian archaeological survey (survey transects spaced no more than 35 feet apart) of the project boundary was conducted on June 29, June 30, July 1, and November 4, 2021. The survey was conducted by GEI archaeologists Jesse Martinez, MA, Registered Professional Archaeologist and Amy Wolpert, MA, both of whom meet the Secretary of the Interior's Professional Qualifications Standards for Archaeology. Native American Tribal representatives Gordon Hilpert and Nelson Smith from Estom Yumeka Maidu Tribe of the Enterprise Rancheria (Enterprise) and Travis Young and Josh Stewart from United Auburn Indian Community of the Auburn Rancheria (UAIC) participated in the survey. Some areas were not surveyed due to lack of access. The survey included unused agricultural fields and orchards, and approximately 13 miles of open grassy fields bordered by levees and railways. The survey area consisted mostly of knee-high grasses, with some areas containing blackberry and other bushes, trees, mustard, and star-thistle. The ground had an average of 5 percent visibility, identifying mostly contemporary garbage and construction debris. Visibility in areas limited to levee crowns and slopes was as high as approximately 20 percent due to fill/gravel on levee crowns and grasses on the levee slopes.

No new archaeological resources were discovered during the field survey. However, Tribal Representatives expressed concern about proximity to a previously recorded prehistoric site near the northern segment of the Feather River East Levee portion of the project site.

Native American Consultation

GEI requested a search of the NAHC Sacred Lands File for the project site. The NAHC responded that the search results were negative. The NAHC also provided a list of Native American Tribal contacts that might have information regarding cultural resources in the project area. Information regarding Native American consultation and coordination is provided in Section of 3.17, "Tribal Cultural Resources.

Impact Analysis and Mitigation Measures

Impact 3.6-1: Substantial Adverse Change in the Significance of a Historical Resource or an Archaeological Resource.

The small portion of the NRHP-eligible Historic District that overlaps the project site is considered a historical resource for the purposes of CEQA. Goldfields West Levee construction would occur along a portion of the western edge of the Historic District. The project work would not cause major modifications to the approximately 10,000-acre Historic District or its contributing resources. The Historic District would retain its overall appearance and feeling as a dredging landscape, and it would continue to convey its historical significance as a dredge mining landscape. This would be a **less than significant** impact.

No archaeological or tribal resources as defined by CEQA were identified during cultural resources investigations. However, one pre-contact archaeological site is immediately adjacent to the Feather River Levee portion of the project site. This site is between the levee and the Feather

River, approximately 50 feet from the levee. Because disturbance in this area would be limited to adding aggregate base to the levee crown, the site would not be impacted by project activities. Potential to encounter previously unidentified, buried historical, or archaeological resources on the project site is low because most of the site is limited to existing levees and associated maintenance zones that were disturbed during previous TRLIA projects. However, such resources may exist in portions of the project site have not been disturbed by previous levee improvements or mining activities, particularly along WPIC West Levee Extension alignment. If such resources are present in areas subject to project-related ground disturbance, they could be destroyed or otherwise substantially altered by project implementation. This would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measures 3.6-1a and 3.6-1b have been identified to address this impact.

Mitigation Measure 3.6-1a: Conduct Additional Cultural Resources Inventory.

Once TRLIA is in possession of property either through fee ownership or legal possession, whichever comes first, TRLIA will implement the following measures to reduce effects of the project on unknown archaeological sites:

- In culturally sensitive areas, not limited to but including those identified by interested Native American Tribes (defined herein as Tribes identified by the NAHC for this project area and who have expressed interest in the project), no ground-disturbing activities, such as archaeological testing, in-fill, ground-disturbing construction, minor earth-moving activities, or any other form of ground-disturbing activities, will be conducted until after a consultant who meets the Secretary of the Interior's Professional Qualifications Standards and who has expertise in geoarchaeological studies has conducted a geoarchaeological study of the project site (the area in which the project may have direct physical effects on the environment, including cultural resources). The geoarchaeological study will include review of relevant background information, such as geotechnical reports, geological and soil maps, levee construction plans, and previous archaeological/cultural studies, to assess the archaeological sensitivity and relative potential for buried archaeological deposits to occur in different parts of the project site, and evaluation of the nature and extent of project-related earth disturbances in areas where the sensitivity for buried sites, including any potentially disturbed buried sites, appears to be elevated. The archaeologists conducting the study will review any existing cores from geotechnical borings in the presence of Native American Monitors and include the analyses in their report.
- If the findings of the geoarchaeological study described above suggest there may be Holocene age soils that are sensitive for archaeological materials and taking into consideration information and recommendations provided by interested Native American Tribes and the geoarchaeologist, geophysical studies such as ground-penetrating radar may be conducted.

- The archaeologists conducting the geoarchaeological study will consult with interested Native American Tribes both prior to conducting the study and prior to completing the draft of their geoarchaeological report. Interested Native American Tribes will be provided drafts of the scope of work and the draft and draft final technical reports for comment. Any comments and recommendations made by interested Native American Tribes will be documented in the project record. Paid monitors from interested Native American Tribes will accompany the team during survey work, and the archaeologist conducting the study will document Native American monitor comments in their survey records. Recordation of Native American resources will be conducted in a respectful manner consistent with the behaviors identified by the Native American Monitor.
- Interested Native American Tribes will be provided the draft and draft final survey report for comment. Any comments and recommendations from interested Native American Tribes will be documented in the project record and integrated into the report. For any recommendations made by interested Native American Tribes which are not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report.
- Minor ground-disturbing activities including but not limited to installation of fencing, soil tests, ground-water test bores, and geotechnical bores, may be conducted in locations outside of identified culturally sensitive areas prior to conducting the studies identified above. Culturally sensitive areas include but may not be limited to areas identified as culturally sensitive on maps provided by interested Native American Tribes and those areas that may be determined to be sensitive as a result of technical archaeological studies conducted in compliance with the mitigation measures identified in this document.
- Once the geoarchaeological study is complete, professional cultural resources specialists (an archaeologist and historian meeting the Secretary of the Interior's Professional Qualifications Standards for their specialty) will complete a pedestrian survey of the project site to identify archaeological and historical resources on the project site consistent with the Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Federal Register 44716–44740). A pedestrian survey will be conducted, to the extent feasible, at a time of year that has acceptable ground visibility. Paid Native American Monitors from interested Native American Tribes will be offered the opportunity to accompany the archaeologists during survey work to assist in identifying known and unknown resources. Prior to initiation of the survey, the archaeologists will meet with the Native American monitors and the Tribal representatives from interested Native American Tribes to discuss and agree on survey procedures, protocols, dispute resolution and behaviors in the presence of Tribal cultural resources. Also prior to the survey, the archaeologists will provide interested Native American Tribes with copies of existing cultural resources reports and other existing data such as NCIC records, with the

exception of confidential information provided by other Native American Tribes. The surveyors will walk transects spaced no more than 35 feet apart. During the survey, the archaeologists will record all resources, including features, isolates, and previously recorded sites, as necessary and will document any recommendations made by interested Native American Tribes. All resources, including archaeological sites, cultural landscapes, historical structures and buildings, historical engineering features, and cultural resources with significance to Native American communities will be documented in accordance with State and Federal guidance including National Register Bulletin 30 (Guidelines for Evaluating and Documenting Rural Historic Landscapes), Bulletin 36 (Guidelines for Evaluating and Registering Archaeological Properties), and Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties); National Park Service Preservation Brief 36 (Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes) and using the ACHP Native American Traditional Cultural Landscapes Action Plan for further guidance. Recordation of historic structures, buildings, objects, and sites will be accomplished by using the California Department of Parks and Recreation 523 Site Record forms. Prior to preparation of the draft report, interested Native American Tribes will be invited to meet with the cultural resources specialists who will prepare the report to discuss the views of the Tribe(s) on resource descriptions and significance. Interested Native American Tribes will be provided a reasonable period of time to comment on all draft and draft final forms and cultural reports and will be provided final reports for its records. Any comments and recommendations made by interested Native American Tribes will be documented in the project record. For any recommendations made by interested Native American Tribes and not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report. All reports, site location information, and other information confidential pursuant to State and Federal law, and that are identified by interested Native American Tribes as confidential, will be treated as confidential information by TRLIA.

- All previously known and recorded resources will be delineated. Both the horizontal and the vertical extent of the cultural resources area will be determined and demarcated. The delineation will test for the presence and absence of cultural material, and then map the full extent of the cultural site without damaging its integrity or context. First, the horizontal extent will be determined. If cultural resources are found, the test program will close the unit and continue to define the horizontal extent until no resources are observed and a sterile unit is noted. At that time, a geoarchaeological and archaeological study will be conducted that will include keyholing the cultural resource area to determine its vertical extent. The site boundary will be recorded using GPS and the site boundary will be flagged to include a 100-foot buffer.

- Concerning scientific handling, testing, or field or laboratory analysis of archaeological sites and materials, TRLIA will consult with interested Native American Tribes and USACE to identify an acceptable procedure. TRLIA will assume for the purposes of this project that NHPA Section 106 consultation will be approached in a manner consistent with the ACHP letter dated March 31, 2015, regarding resolution of adverse effects in the Feather River West Levee Project matter. However, TRLIA is not the lead agency for Section 106 compliance. TRLIA, as the lead agency under CEQA, will not require scientific handling, testing, or field or laboratory analysis, and will consider various types of mitigation including non-traditional approaches to treatment and will recognize the State policy in PRC Section 5097.991 that Native American remains and grave goods will be repatriated.
- Native American human remains, associated grave goods and items associated with Native American human remains that are subject to PRC Section 5097.98 (*see below*) will not be subjected to scientific analysis, handling, testing or field or laboratory analysis without written consent from the MLD. If human remains are present, treatment will conform to the requirements of State law under HSC Section 7050.5 and PRC Section 5097.87, unless the discovery occurs on Federal land. TRLIA agrees to comply with other related State laws, including PRC Section 5097.9.
- TRLIA will provide interested Native American Tribes with all project-related cultural resources reports. This includes survey, inventory, testing, and excavation reports; a complete copy of the NCIC records search; any site records or reports that were generated by the NCIC record search and request; the NCIC invoice and the NCIC summary letter; and copies of any and all correspondence between TRLIA and the NAHC, California Office of Historic Preservation, and ACHP.
- Interested Native American Tribes will be provided reasonable time to review and comment on the draft and draft final reports. Any comments made by interested Native American Tribes will be documented in the project record, and recommended revisions will be considered for inclusion in the final reports. For any recommendations made by interested Native American Tribes which are not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report. Records of all Native American consultation conducted under CEQA will be confidentially provided to the lead Federal agency responsible for compliance with Section 106 of the NHPA and the National Environmental Policy Act.
- Native American Representatives from interested Native American Tribes will be provided an opportunity to consult in cultural resource identification efforts, evaluation of effects, analysis of avoidance and design alternatives, and mitigation analysis. The Native American representatives will be allowed to review and comment on these analyses. Should any Native American cultural resources be encountered, resource documentation will take into consideration recommendations and comments made by interested Native American Tribes. These comments and

recommendations will be documented in the project reports and in the resource records. For any recommendations made by interested Native American Tribes which are not adopted by TRLIA, a justification for why the recommendation was not followed will be provided in the report.

- TRLIA or a TRLIA representative may request additional information, or notify the appropriate Native American Tribe, if they disagree with identification, recommendations, or actions made by a Native American Monitor or Native American Representative. Similarly, a Native American Monitor or Native American Representative may notify or request additional information from TRLIA if they disagree with identification, recommendations, or actions made by TRLIA or one of its representatives.
 - Native American Representatives from interested Native American Tribes act as a representative of their Tribal government and must be consulted before any cultural studies or ground-disturbing activities begin.
 - Native American Monitors from interested Native American Tribes act as cultural stewards in the field or lab to preserve and protect the Tribe's cultural interests, and will be scheduled during each phase of cultural resources work, including but not limited to field checks, survey, testing, excavation, and recovery work; and during construction-related activities, including geotechnical work, topsoil removal (stripping or grubbing), grading, trenching, backfilling, installation of underground infrastructure, levee build, installation of slurry ponds, and closeout activities.
 - Both Native American Representatives and Native American Monitors have the authority to identify sites or objects of significance to Native Americans and to request that work be stopped, diverted, or slowed if such sites or objects are identified within the direct impact area; however, only a Native American Representative can recommend appropriate treatment of such sites or objects.
- TRLIA's qualified cultural resources specialists will prepare a report describing the consultation, identification, and inventory efforts as well as the results of the cultural resources study. Any Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines will also be identified during inventory efforts. The report format and content will be consistent with the California Office of Historic Preservation Archaeological Resources Management Reports guidelines as may be amended. The report text will include a detailed summary of Native American consultation including an integrated discussion of comments and recommendations made by interested Native American Tribes. Consistent with the CRHR, TRLIA is committed to working with interested, culturally-affiliated Native American Tribes to identify and inventory any and all traditional cultural resources or historical resources that may qualify for listing in the CRHR including traditional cultural properties and cultural landscapes using methods consistent with State and Federal guidance

including National Register Bulletin 30 (Guidelines for Evaluating and Documenting Rural Historic Landscapes), Bulletin 36 (Guidelines for Evaluating and Registering Archaeological Properties), and Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties); National Park Service Preservation Brief 36 (Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes) and using the ACHP's Native American Traditional Cultural Landscapes Action Plan for further guidance. If such resources are identified during the inventory, TRLIA will retain an ethnographer to evaluate and assess any potential direct, indirect, or cumulative impacts resulting from the proposed project. That evaluation will include information provided by Native American Monitors during identification and inventory efforts and relevant information provided by Native American Representatives during or through meetings, site visits, written correspondence, or telephone correspondence. Any information that is identified as confidential by a Native American Representative or Monitor will be separated into a confidential appendix that would be available only on a confidential basis to the Tribe providing the information and any State or Federal agencies or courts with jurisdiction.

- TRLIA will take the following actions depending on the results of the geoarchaeological study, the geophysical study (if implemented based on geoarchaeological information and recommendations made by interested Native American Tribes), the pedestrian archaeological and Native American survey (conducted to the extent feasible, at a time of year that has acceptable ground visibility), the field review, the archaeological report, and all Native American consultation:
 - If the investigations described above identify sensitive areas on the project site, qualified archaeologists will conduct subsurface excavations in these areas and in any areas on the project site that are covered by dense vegetation or relatively recent fill. If any resources are encountered during these excavations, Extended Phase 1 excavations may be conducted to assess resource boundaries to reduce the chances that cultural resources would be disturbed during construction. Native American monitors from interested Native American Tribes will accompany the archaeologist during these excavations to identify and recommend appropriate treatment for cultural resources.
 - If the research suggests there may be Holocene age soils that are sensitive for archaeological materials, the geoarchaeologist will work with representatives and/or monitors from interested Native American Tribes and archaeologists to prepare and implement a test plan to assess the potential for subsurface cultural deposits.
 - If geophysical testing or other studies, analysis, or information suggests that there may be human remains, burials, or cultural features present, the geoarchaeologist will work with Native American representatives from interested Native American

Tribes and the archaeologists to prepare and implement a test plan to assess the potential for subsurface human remains and cultural deposits.

- Using the results of all studies and sensitivity analyses conducted by cultural resources specialists and recommendations from interested Native American Tribes, TRLIA and its representative will consult with the Institute for Canine Forensics or a similar organization to determine if a canine forensic survey of the project site is feasible and potentially useful. If the Institute for Canine Forensics recommends that a canine forensic survey is feasible and would be potentially useful, such a survey will be conducted.
- TRLIA, in consultation with the MLD to be identified by the NAHC, will also develop a Burial Avoidance and Recovery Plan to be implemented if human remains or burial objects are observed during the cultural resources investigations. If human remains are discovered during these activities, TRLIA and the contractors will coordinate with the local county coroner and NAHC to make the determinations and perform the management steps prescribed in State law including HSC Section 7050.5 and PRC Section 5097.98.
- If identification efforts result in identification of sites considered to be religious, sacred, or ceremonial, TRLIA and interested Native American Tribes will consult on access by interested Native American Tribes to such sites in a way that is consistent with levee construction, operation, maintenance, and safety requirements.

Timing: Before and during project construction activities.

Responsibility: TRLIA.

Mitigation Measure 3.6-1b: Implement Construction-Related Inadvertent Discovery Plan Discovery Plan and Conduct Cultural Resource Awareness and Sensitivity Training.

TRLIA and its construction contractor(s) will implement the following measures to reduce effects of the project on unknown archaeological sites:

- TRLIA will include a construction-related inadvertent discovery plan in the construction contractor's contract conditions, which must be finalized and approved before both in-fill and ground-disturbing construction activities begin. The construction-related inadvertent discovery plan will require the construction contractor to take the following actions if cultural resources such as bone, shell, artifacts, human remains, historic period structural features, architectural elements, bottles, ceramics, bricks, etc. are discovered after in-fill or ground-disturbing construction activities begin:
 - If potential archaeological resources, cultural resources, articulated, or disarticulated human remains are discovered by Native American Monitors, Native American Representatives, qualified cultural resources specialists or other

project personnel during construction activities, work will cease in the immediate vicinity of the find, based on the apparent distribution of cultural resources, whether or not a monitor is present. A qualified cultural resources specialist and representatives and monitors from interested Native American Tribes will assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These recommendations will be documented in the project record. For any recommendations made by interested Native American Tribes which are not implemented, a justification for why the recommendation was not followed will be provided in the project record.

- No construction activities will occur within 100 feet of an area under a stop work order. TRLIA will honor all reasonable requests by a Native American Monitor or Native American Representative to stop work in a specified area for 48 hours, or until Native American Representatives have provided a reasonable path for work to resume, whichever occurs first.
- Native American monitors from interested Native American Tribes will be invited to monitor the vegetation grubbing, stripping, grading, or other ground-disturbing activities on the project site to determine the presence or absence of any cultural resources.
- Following a finding that the discovery represents a potential historical or cultural resource, an archaeologist who meets the Secretary of Interior's Standards for a Professional Archaeologist will delineate the resource according to industry-standard methods taking into consideration recommendations and findings of interested Native American Monitors or Tribal Representatives. Recordation of Native American resources will be conducted in a respectful manner consistent with the behaviors identified by the Native American Monitor. The delineation will identify and map the full extent of the site. Geoarchaeological and archaeological methods will be consistent with those described in Mitigation Measure 3.6-1a. The site boundary will be recorded using GPS and the site boundary will be flagged to include a 100-foot buffer.
- Avoidance and preservation in place is the preferred manner of mitigating impacts to a cultural resource and may be accomplished by several means, including planning construction to avoid archaeological sites; incorporation of sites within parks, green-space, or other open space; covering archaeological sites, or; deeding a site into a permanent conservation easement; or other preservation and protection methods agreeable to consulting parties and regulatory authorities with jurisdiction over the activity. Recommendations for avoidance of cultural resources will be reviewed by TRLIA, interested Native American Tribes, and the appropriate agencies in light of factors such as costs, logistics, feasibility, design, technology, and social, cultural, and environmental considerations and the extent to which avoidance is consistent with project objectives. Avoidance and design alternatives may include realignment within the project area to avoid cultural

resources, modification of the design to eliminate or reduce impacts to cultural resources, or modification or realignment to avoid highly significant features within a cultural resource. Native American Representatives will be allowed to review and comment on these analyses and will have the opportunity to meet with TRLIA and its representatives who have technical expertise to identify and recommend feasible avoidance and design alternatives, so that appropriate and feasible avoidance and design alternatives can be identified.

- If the resource can be avoided, the construction contractor(s) and maintenance personnel, with monitors from interested Native American Tribes present, will install protective fencing outside the site boundary, including the buffer area, before construction restarts. The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area." Representatives from interested Native American Tribes and TRLIA will also consult to develop measures for long term management of the resource and routine operation and maintenance within culturally sensitive areas that retain resource integrity, including tribal cultural integrity, and including archaeological material, Traditional Cultural Properties, and cultural landscapes, in accordance with State and Federal guidance including National Register Bulletin 30 (Guidelines for Evaluating and Documenting Rural Historic Landscapes), Bulletin 36 (Guidelines for Evaluating and Registering Archaeological Properties), and Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties); National Park Service Preservation Brief 36 (Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes) and using the ACHP's Native American Traditional Cultural Landscapes Action Plan for further guidance. Use of temporary and permanent forms of protective fencing will be determined in consultation with Tribal Representatives from interested Native American Tribes.
- If preservation in place using appropriate covering or capping is the selected approach, the construction contractor(s) and maintenance personnel will install geotechnical fabric as a protective cover to the surface of the resources and then cap or cover the resource with a layer of local or certified clean soil. A copy of the clean soil certificate will be provided to interested Native American Tribes before a resource is capped or covered. The layer of soil will be thick enough that construction activities will not penetrate the protective cap or otherwise disturb the resource. An archaeologist who meets the Secretary of Interior's Standards for a Professional Archaeologist and a Native American monitor must be present during installation of any protective barrier and capping of a resource. Representatives and monitors from interested Native American Tribes will also be invited and allowed to attend the installation and capping. Both temporary and permanent forms of resource capping will be determined in consultation with

interested Native Americans. The limits of the area to be capped will be demarcated in the field by a Native American Monitor in consultation with a TRLIA representative and cultural resources specialists.

- If avoidance is infeasible, a Treatment Plan that identifies how identified properties that have been determined to be eligible for the CRHR or NRHP will be treated under CEQA will be prepared and implemented in consultation with TRLIA and interested Native American representatives (if the resources are prehistoric or Native American in nature). In all cases, treatment will be carried out with dignity and respect. Interested Native American Tribes will be consulted on the research approach, methods and whether burial or data recovery or alternate mitigation is culturally appropriate for the find. Alternative mitigation will be considered for cultural resources instead of burial and archaeological data recovery, curation, testing, and analysis. Work may proceed on other parts of the project site while treatment is being carried out to the extent it does not interfere with respectful treatment.
- TRLIA and the MLD will implement the Burial Avoidance and Recovery Plan developed as a part of Mitigation Measure 3.6-1a if human remains or burial objects are observed during construction. If human remains are discovered during these activities, TRLIA and the contractors will coordinate with the local county coroner and NAHC to make the determinations and perform the management steps prescribed in HSC Section 7050.5 and PRC Section 5097.98.
- For any treatment and plans, TRLIA will assume for the purposes of this project that NHPA Section 106 consultation will be approached in a manner consistent with the ACHP letter dated March 31, 2015, regarding resolution of adverse effects in the Feather River West Levee Project matter. However, TRLIA is not the lead agency for Section 106 compliance. TRLIA, as the lead agency under CEQA, will not require scientific handling, testing, or field or laboratory analysis, and will consider various types of mitigation including non-traditional approaches to treatment and will recognize the State policy in PRC Section 5097.991 that Native American remains and grave goods will be repatriated.
- A consultant and construction worker cultural resources awareness brochure and training program for all personnel involved in project implementation will be developed in coordination with interested Native American Tribes. The brochure will be distributed, and the training will be conducted in coordination with a qualified cultural resources specialists and representatives and monitors from interested Native American Tribes after the cultural resource studies are completed but before any stages of project implementation and construction activities begin on the project site. The program will include relevant information regarding sensitive archaeological resources, including applicable regulations and, protocols for avoidance and consequences for violations of State laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and

minimization measures for resources that have the potential to be located within the project boundary and will outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The program will also underscore the requirement for confidentiality and culturally appropriate treatment of any find of significance to Native Americans and behaviors consistent with Native American Tribal values.

- Following completion of major construction activities, TRLIA and its consultant, in consultation with interested Native American Tribal Representatives, will prepare a report that documents what, if any, cultural resources or human remains were discovered during project implementation, how impacts to each resource (whether discovered during construction or during inventory and consultation) were avoided or what treatment was instituted, the condition of each resource after project implementation, recommendations for how additional impacts can be avoided, and recommendations for management of each resource. Interested Native American Tribes will be provided reasonable time to review and comment on the draft and draft final confidential report. Any comments made by interested Native American Tribes will be documented in the project record, and recommended revisions will be considered for inclusion in the final reports. For any recommendations made by interested Native American Tribes which are not incorporated into the report, a justification for why the recommendation was not followed will be provided in the report.

Timing: Before, during, and after project construction activities.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measures 3.6-1a and 3.6-1b would reduce this impact because any previously unidentified cultural resources encountered during ground-disturbing activities would be recognized by construction personnel and appropriate discovery protocols would be implemented. Therefore, the impact from the project associated with discovery of previously unknown cultural resources would be **less than significant with mitigation incorporated**.

Impact 3.6-2: Disturbance of Human Remains, including Remains Interred Outside of Dedicated Cemeteries.

No human remains were identified during the pedestrian survey of the project site and none were reported in the records search conducted for the project. Given the project site was used for aggregate mining in the past, any human remains that may have existed on the site have likely been destroyed. However, it is possible, though unlikely, that undiscovered, buried human remains may exist on the project site. If human remains are present in areas subject to project-related ground disturbance, they could be encountered during project implementation. This would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measures 3.6-1a and 3.6-1b would address this impact.

Mitigation Measure 3.6-1a: Conduct Additional Cultural Resources Inventory.

Please *refer to* Mitigation Measure 3.6-1a in Impact 3.6-1 above for full text of this mitigation measure.

Mitigation Measure 3.6-1b: Implement Construction-Related Inadvertent Discovery Plan Discovery Plan and Conduct Cultural Resource Awareness and Sensitivity Training.

Please *refer to* Mitigation Measure 3.6-1b in Impact 3.6-1 above for full text of this mitigation measure.

Significance after Mitigation: Implementing Mitigation Measures 3.6-1a and 3.6-1b would reduce this impact because any inadvertent discovery of human remains would be addressed as proscribed by State law and the MLD will be consulted. Therefore, the impact from the project associated with disturbance of human remains would be **less than significant with mitigation incorporated**.

Residual Significant Impacts

Mitigation measures that would reduce potential impacts to cultural resources to less-than-significant levels have been identified and will be implemented as required. These measures have been developed and implemented with substantial Tribal input and implemented successfully for other past TRLIA projects without significant impacts; and therefore, there would be no residual significant impacts.

3.7 Energy

This section was prepared pursuant to the State CEQA Guidelines Section 15126.2(b) and Appendix F of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether implementing the project would result in inefficient, wasteful, or unnecessary consumption of energy or conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

3.7.1 Environmental Setting

Electricity Use and Generation

In 2020, California's energy mix totaled 272,576 gigawatt hours of electricity, of which approximately 60 percent was from in-state electricity generation and the remaining 40 percent was imported from adjacent states in the Northwest and Southwest (California Energy Commission [CEC] 2020a). In 2020, total energy generation for California was down by 2 percent, or 5,356 gigawatt hours, compared to 2019.

Natural gas is the main source of electricity in California, accounting for approximately 37 percent of electricity used in California. After natural gas generation, electricity in California is generated by renewables (33%), large hydroelectric (12%), nuclear (9%), coal (3%), oil (0.01%), and other methods such as petroleum and waste heat (0.20%) (CEC 2020a).

Yuba County receives its retail electric service from PG&E. In 2020, the total electricity consumption for Yuba County was approximately 567 million kilowatts per hour (CEC 2020b).

Natural Gas

One-third of the energy commodities consumed in California consists of natural gas. Although natural gas is the most common energy source for electricity generation in California, in 2020, about 98 percent of U.S. total annual natural gas imports were from Canada and nearly all by pipelines. U.S. natural gas imports are generally highest in winter when imports help meet increases in natural gas demand for heating. The United States used about 30.5 trillion cubic feet of natural gas in 2020, the equivalent of about 31.5 quadrillion British thermal units. The natural gas market continues to evolve and service options expand, but its use falls mainly into the following five sectors: residential, commercial, industrial, transportation, and electric power generation. (U.S. Energy Information Administration [EIA] 2021a.)

Nearly 38 percent of the natural gas burned in California is used for electricity generation, and the remainder is consumed in the industrial (33%), residential (15%), commercial (10%), and transportation (3%) sectors. The clean burning properties of natural gas have contributed to increased natural gas use for electricity generation and as a transportation fuel for fleet vehicles in the United States. (EIA 2021a.)

Transportation Fuels

The transportation sector energy consumption accounts for roughly 66 percent of California’s petroleum demand (EIA 2021b). Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the California Energy Commission (CEC), California relies on petroleum-based fuels for 90 percent of its transportation needs. In 2020, approximately 35 percent of California’s crude oil was obtained from within the State, about 18 percent came from Alaska, and the remaining 47 percent came from outside the U.S. (CEC 2020c).

3.7.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to reduce energy consumption by increasing the fuel economy of cars and light trucks. In adherence to this Act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (USDOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

Corporate Average Fuel Economy Standards

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government’s fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer’s average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. Using information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance. The CAFE standards were revised for the first time in 30 years under the Energy Independence and Security Act of 2007.

State Plans, Policies, Regulations, and Laws

Senate Bill 350

SB 350 establishes tiered increases to the Renewables Portfolio Standard of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the electricity and natural gas savings for existing buildings through energy efficiency and conservation.

Senate Bill 100

SB 100 establishes a state goal of 100 percent clean electricity by 2045. This bill advances the Renewables Portfolio Standard by increasing renewables to 50 percent by December 31, 2026 and to 60 percent by December 31, 2030.

California Energy Commission

The CEC was established by the Warren-Alquist Act in 1974 to respond to the energy crisis of the early 1970s. The CEC is California's primary energy policy and planning agency, and its primary activities are advancing California energy policy, achieving energy efficiency, investing in energy innovations, developing renewable energy, transforming transportation, overseeing energy infrastructure, and preparing for energy emergencies.

California Energy Action Plan

California's 2008 Energy Action Plan Update revised the 2005 Energy Action Plan II, the State's principal energy planning and policy document. The plan builds on the success of the State's first Energy Action Plan, adopted in 2003, and describes a coordinated implementation plan for State energy policies, and identifies action areas. The overarching goal of the plan is for California's energy to be reliable, affordable, technologically advanced, and environmentally-sound.

Regional and Local Plans, Policies, Regulations, and Ordinances

Yuba County 2030 General Plan

Most of the policies and actions included in the Natural Resources Element of the Yuba County 2030 General Plan (Yuba County 2011a) apply to development projects. However, the following overall energy goal is relevant to the proposed project.

GOAL NR 7: Energy. Improve energy efficiency, encourage renewable energy generation and use, and reduce ongoing household and business energy costs.

3.7.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The significance criteria used to evaluate project impacts to energy are based on Appendix G of the State CEQA Guidelines. A significant impact related to energy issues would occur if the project would result in either of the following:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency

Analysis Methodology

Evaluation of the potential impacts of the proposed project on energy consumption was based on a review of planning documents pertaining to the project area, particularly the Yuba County 2030 General Plan (Yuba County 2011a) and the Final Yuba County 2030 General Plan Environmental Impact Report (Yuba County 2011b).

Issues Not Discussed Further in this EIR

Conflict with State or Local Plan for Renewable Energy or Energy Efficiency. Yuba County has not adopted a local plan for renewable energy or energy efficiency; however, the State’s Climate Commitment is to reduce reliance on non-renewable energy sources by half by 2030 (CEC 2015). The project would not conflict with or obstruct the State’s Climate Commitment. Therefore, the project would not conflict with any State standards or renewable energy plans. There would be no impact from the project and this issue is not discussed further in this EIR.

Impact Analysis and Mitigation Measures

Impact 3.7-1: Cause Wasteful, Inefficient, or Unnecessary Consumption of Energy Usage.

CEQA requires mitigation measures to reduce “wasteful, inefficient, and unnecessary” energy usage (PRC 21100(b)(3)). However, no criteria have been established that define wasteful, inefficient, or unnecessary use of energy.

Project-related energy use would include electricity, gasoline, and diesel fuel, which would be used primarily by equipment and vehicles during the 1- to 4-year project construction period. Chapter 2, “Project Description,” and **Appendix B, “Anticipated Construction Equipment Use for Each Project Component,”** provide details on construction activities relevant to energy use, including the estimated material volumes and number of truck trips required for material import/export for each construction component (**Tables 2-3 and 2-4**, respectively), construction equipment use during each construction phase (**Appendix B**) and each construction component (**Table 2-5**), and numbers of construction workers and workforce source.

Although no significance thresholds are available for analysis of energy consumption, it is anticipated that fuel would only be used to the extent it is needed to complete construction activities and would not be consumed in a wasteful manner during construction. Additionally, the selected construction contractor(s) would use the best available engineering techniques, construction practices, and equipment operating procedures. Furthermore, fill material needed to improve existing levees and construct new levee embankments would be sourced from the nearest available locations that meet project specifications, and all exported debris is anticipated to be eligible for disposal at the local Recology Ostrom Road Landfill.

Project-related O&M activities are anticipated to require a very minor increase in efforts and vehicle trips and equipment use compared to existing conditions. O&M activities for existing levees and associated structures would continue as under current conditions, and additional activities would only be required for the new levee segments. Additional energy use for O&M activities associated with the Goldfields West Levee and WPIC West Levee Extension would be minimal because these new levee segments would total less than 3 miles, compared to the approximately 32 miles of existing levees in the RD 784 urban levee system. Additionally, fuel consumption during O&M activities would be relatively small because such activities would require very limited and occasional use of large construction equipment that requires large amounts of fuel. Furthermore, operation of the additional relief wells would not require any

energy use as they are passive features that allow groundwater to flow through the wells when river and associated water pressure levels are high enough. Because minimal energy would be required during project O&M activities, and construction- and operation-related energy consumption would not be wasteful, inefficient, or unnecessary, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

The project would have no significant impact, and therefore no residual significant impact, related to energy.

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3.8 Geology, Soils, and Paleontological Resources

This section discusses the existing geological setting of the project vicinity; describes applicable regulations; analyzes potential project impacts related to geology, soils, and paleontological resources; and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level.

3.8.1 Environmental Setting

Regional Geology

The project is in the Central Valley Geomorphic Province, which encompasses the Sacramento and San Joaquin valleys. This province is an alluvial plain approximately 50 miles wide and 400 miles long, stretching from Redding to just south of Bakersfield (California Geological Survey [CGS] 2002). Alternating marine and continental deposits of Tertiary age underlie much of the Central Valley Province. The Great Valley is a structural trough into which sediments have been deposited almost continuously since the Jurassic Period (about 160 million years ago) and is drained by the Sacramento River.

Local Geology

Before mining activities began in the 1800s, areas along the Yuba River were comprised of the Modesto, Riverbank, and Laguna Formations (Saucedo and Wagner 1992, Wagner et al. 1981). In the Yuba Goldfields, hydraulic mining methods used high-pressure streams of water to wash away ancient, gold bearing river channel deposits hundreds of feet thick. The clay, silt, sand, gravel, and cobbles were washed in sluice tunnels, which drained the hydraulic pits. These “tailings” were dumped into streams and rivers. From 1860 to 1890, several hydraulic mines in the Yuba River watershed generated millions of cubic yards of tailings, which choked the Yuba River and caused flooding of farmlands down river. In 1884, the dumping of hydraulic mine tailings into drainages was prohibited (Yuba County 2015). Dredge mining for gold has occurred in the Goldfields for more than 100 years and continues today, resulting in piles of tailings up to 90 feet high. Therefore, the Goldfields West Levee portion of the project area is located on land consisting of dredge and mining tailings.

The project site is located on a broad, gently sloping alluvial plain that slopes west from the Sierra Nevada foothills toward the Sacramento River. A review of the Geologic Map of California, Chico, and Sacramento sheets (Saucedo and Wagner 1992, Wagner et al. 1981) indicates the project area is underlain by Quaternary-aged natural levee and channel deposits, basin deposits, and the Modesto and Riverbank formations.

The project site is located in the USGS Nicolaus, Olivehurst, Yuba City, and Browns Valley 7.5-minute quadrangles. The topography of the project site has been modified by deposition of sediments from hydraulic mining, grading for agricultural development, and placement of fill associated with roadway and levee construction. The Geologic formations present in the project

area include Natural Levee and Channel Deposits, Basin Deposits, Riverbank Formation, and Modesto Formation, all of which are described below.

Natural Levee and Channel Deposits

This Holocene-age formation consists of sand, silt, and gravel deposited by active stream channels and their natural levees (i.e., the Yuba River), as well as adjacent broad alluvial fans.

Basin Deposits

Basin deposits are Holocene-age and consist of fine-grained silt and clay derived from the same source materials as modern alluvium. The thickness of basin deposits varies from 3 to 6.5 feet along valley perimeter areas (e.g., the project area) to as much as 200 feet in the center of the valley (Helley and Harwood 1985).

Riverbank Formation

The Riverbank Formation is Pleistocene in age; estimates place the age between 130,000 and 450,000 years B.P. (Marchand and Allwardt 1981). In the project vicinity, the Riverbank Formation forms higher alluvial fans and terraces of major rivers and can be divided into upper and lower members. Sediments in the Riverbank Formation consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans (Helley and Harwood 1985).

Modesto Formation

The Modesto Formation is Late Pleistocene in age, indicating an age greater than 11,700 B.P. The Modesto Formation comprises mainly feldspar-rich sand and associated deposits, locally derived, laid down during the last major series of large-scale aggregational events in regionally. Modesto deposits overlie Riverbank alluvium and older units and are locally incised or covered along modern channels by post-Modesto deposits. (Marchand and Allwardt 1981.)

Seismicity

Yuba County is an area of relatively low seismic activity, where damaging earthquakes are rare. The Foothills Fault System is the dominant structural feature of the western Sierra Nevada. The steeply dipping to vertical component faults that make up this system trend northwest through an area approximately 200 miles long and 30 miles wide, from Mormon Bar (east of Merced) in the south to Lake Almanor in the north. Portions of the Swain Ravine and Spenceville Faults (8-11 miles east of the project site) have shown evidence of activity during the Pleistocene, from 11,700 to 700,000 years B.P. (CGS 2015). However, the slip rate of the Foothills Fault System is extremely low (less than 0.002 inch per year), which is well below the planning threshold for major earthquakes (Wills et al. 2008). The nearest known potentially active fault to the project site is the Historic Cleveland Hill Fault, approximately 16 miles to the northeast (CGS 2015). Other known active faults are generally located in the Coast Ranges, approximately 30 to 40 miles west of the project area.

Other Geologic Hazards

According to CGS, the project site is not mapped in a State-designated area (Alquist-Priolo Fault Zone) where strong seismic ground shaking, or associated liquefaction, landslides, or seiche, are likely to occur (CGS 2021).

Local Soils

A review of NRCS soil survey data (NRCS 2021) indicates that the project site includes several soil types (**Table 3.8-1**). These soils exhibit a range of shrink-swell potential and moderate to very high erosion potential. Expansive or shrink-swell soils swell when wet and shrink when dry. These clays tend to swell despite the heavy loads imposed by large structures. Damage (such as cracking of foundations) results from differential movement and from the repetition of the shrink-swell cycle. In some cases, this problem may be avoided by removing the topsoil layer before placing a foundation. Although these soils can be a nuisance, awareness of their existence prior to construction often means that the problem can be eliminated through proper design. NRCS soil erosivity is based on slope and soil erodibility factors. Soil loss may occur due to sheet or rill erosion on these soils. Approximately 75 percent of the project site has moderate to high shrink-swell potential.

Table 3.8-1. Soils Series Present on the Project Site

Soil Series Name and Identification Number	Description	Shrink-Swell Potential	Erosion Potential
131 – Hollenbeck silty clay loam, 0-1% slopes	This soil is typically located on valleys and basin floors. The natural drainage class is moderately well drained. Runoff is very low.	High	Moderately low-moderately high
132 – Hollenbeck silty clay loam, 0-1% slopes, occasionally flooded	This soil is typically located on valleys and basin floors. The natural drainage class is moderately well drained and is occasionally flooded. Runoff is low.	High	Moderately low-moderately high
137 – Columbia fine sandy loam, 0-1% slopes	The natural drainage is somewhat poorly drained. Runoff is very low. This soil meets hydric criteria.	Low	High
138 – Columbia fine sandy loam, 0-1% slopes, occasionally flooded	The natural drainage is somewhat poorly drained. This soil is occasionally flooded. A seasonal zone of water saturation is at 48 inches during January-April and December. Runoff is very low.	Low	High
140 – Columbia-Urban land complex, 0-1% slopes	This soil is located on floodplains and valleys. The natural drainage is somewhat poorly drained. This soil meets hydric criteria. Runoff is very low.	Low	High
141 – Conejo loam, 0-2% slopes, MLRA 17	This soil is on stream terraces. The natural drainage class is well drained. Runoff is very low.	Moderate	Moderately high
142 – Conejo loam, 0-2% slopes, occasionally flooded, MLRA 17	This soil is on low stream terraces on valleys. The natural drainage class is well drained. This soil is occasionally flooded. Runoff is low.	Moderate	Moderately high

Table 3.8-1. Soils Series Present on the Project Site

Soil Series Name and Identification Number	Description	Shrink-Swell Potential	Erosion Potential
146 – Dumps, Mine Tailings	Dumps and mining tailings are located in the Goldfields from historic and present-day hydraulic mining.	N/A	N/A
161 – Holillipah loamy sand, 0-1% slopes	This soil is on floodplains and valley. The natural drainage class is somewhat excessively drained. This soil meets hydric criteria. Runoff is very low.	Low	High
163 – Holillipah loamy sand, 0-1% slopes, frequently flooded	This soil is on Sacramento Valley floodplains. The natural drainage class is somewhat excessively drained. This soil is occasionally flooded. This soil meets hydric criteria. Runoff is very low.	Low	High
183 – Kilaga clay loam, hardpan substratum, 0-1% slopes	This soil is on valleys and stream terraces. The natural drainage class is well drained. Runoff is low.	High	Moderately low-moderately high
185 – Kimball loam, 0-1% slopes	This soil is on valleys and low fan terraces. The natural drainage class is well drained. Runoff is low.	Moderate	Very low-moderately low
214 – San Joaquin loam, 0-1% slopes	This soil is on valleys and low fan terraces. The natural drainage class is well drained. Runoff is very low.	Moderate	Very low-moderately low
216 – San Joaquin loam, 0-1% slopes, occasionally flooded	This soil is on low fan terraces, valleys, swales, and mounds. The natural drainage class is well drained. Runoff is very low.	Moderate	Very low-moderately low
217 – Urban land-San Joaquin complex, 0-1% slopes	This soil is on low fan terraces and valleys. The natural drainage class is well drained. Runoff is very low.	Moderate	Very low-moderately low
218 – Shanghai silt loam, 0-1% slopes	This soil is on floodplains and valleys. The natural drainage class is somewhat poorly drained. Runoff is very low.	Moderate	Moderately high-high
249 – Tujunga sand, 0-1% slopes	This soil is on floodplains and valleys. The natural drainage class is somewhat excessively drained. Runoff is very low.	Low	High-very high
250 – Tujunga gravelly sand, 0-2% slopes	This soil is on floodplains and valleys. The natural drainage class is somewhat excessively drained. Runoff is very low.	Low	High-very high
251 – Tujunga sand, 0-1% slopes, occasionally flooded	This soil is on floodplains and valleys. The natural drainage class is somewhat excessively drained. Runoff is very low.	Low	High-very high
254 – Water	Consists of open water near in the Goldfields near the Yuba River.	NA	NA

Notes: NA = not applicable, MLRA = Major Land Resource Area
Source: Natural Resources Conservation Service 2021

3.8.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to geology, soils, or paleontological resources apply to the proposed project.

State Plans, Policies, Regulations, and Laws

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC Sections 2621–2630) requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The project site is not located within an Alquist-Priolo Earthquake Fault Zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) addresses earthquake hazards from nonsurface fault rupture, including liquefaction and seismically induced landslides. The Act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The Act also specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils. The project site is not located within an area designated as potential for liquefaction, landslides, strong ground shaking or other earthquake and geologic hazards.

Professional Paleontological Standards

The Society of Vertebrate Paleontology (SVP), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation (SVP 2010). Most practicing professional paleontologists in the nation adhere to the SVP assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

National Pollutant Discharge Elimination System

The SWRCB and CVRWQCB have adopted specific National Pollution Discharge Elimination System (NPDES) permits for a variety of activities that have the potential to discharge wastes (including sediment) to waters of the State. The SWRCB Statewide storm water general permit for construction activity (2009-0009-DWQ) applies to all land-disturbing construction activities that would disturb 1 acre or more. Compliance with the NPDES permit requires submitting a notice of intent to discharge to CVRWQCB and implementing a Stormwater Pollution Prevention Program (SWPPP) that includes BMPs to minimize water quality degradation during construction activities.

Regional and Local Plans, Policies, Regulations, and Ordinances

Yuba County 2030 General Plan

The Yuba County 2030 General Plan includes the following goal and policies addressing geologic and seismic risks in the Health and Safety Element (Yuba County 2011) relevant to the proposed project.

GOAL HS 8: Geology and Soils. Reduce risk to people and property from geologic hazards and soil limitations.

- **Policy HS 8.3.** A grading permit from the County is required for movement of dirt, soil, rock, debris, or other material on over one acre of land and construction of retaining walls, bridges, and fill operations exceeding 4 feet, unless the activity is listed in the County Code as exempt from grading requirements.
- **Policy HS 8.4.** Grading permits generally require submittal of grading plans and drainage study for review and approval by the Community Development and Service Agency, and where requested, a revegetation and winterization plan, and geotechnical investigation report.
- **Policy HS 8.5.** An erosion sediment control plan meeting County standards for preventing increased discharge of sediment is required for:
 - Projects that propose to grade more than 10,000 square feet of area having a slope greater than 10 percent
 - Clearing and grubbing areas of one acre or more regardless of slope
 - Projects where more than 2,500 square feet will be inadequately protected from erosion during any portion of the rainy season
 - Projects that involve grading will occur within 50 feet of any watercourse
 - Where the County determines that the grading will or may pose a significant erosion, or sediment discharge hazard for any reason
- **Policy HS 8.6.** Project applicants may be required to show evidence of coverage, or application for coverage, under an NPDES general construction permit and a SWPPP with a State issued [Waste Discharger Identification] W.D.I.D. number, if applicable. Grading activities shall be located and designated to avoid contributing to the violation of provisions of any applicable NPDES stormwater discharge permit.
- **Policy HS 8.7.** Grading activities shall be designed, per County standards, to avoid obstructing or impeding the natural flow of stormwaters, causing accelerated erosion, or aggravating any existing flooding condition.
- **Policy HS 8.9.** Grading activity and land disturbance shall be conducted such that the smallest practicable area of erodible land is exposed at any one time.
- **Policy HS 8.10.** Grading activities shall preserve natural features, including vegetation, terrain, watercourses, and similar resources, wherever feasible.

- **Policy HS 8.11.** Grading activities within 400 feet of a landside levee toe shall require a registered geotechnical engineer to submit a stamped report demonstrating that the proposed action will not have an adverse impact on the integrity of the levee system. Agricultural practices are generally exempt from setback requirements except for the storage of agricultural waste.

GOAL NR 6: Identify, protect, and preserve Yuba County’s important prehistoric and historic resources.

- **Policy NR 6.2.** If potential paleontological or prehistoric resources are detected during construction, work shall stop, and consultation is required to avoid further impacts.
 - **ACTION NR 6.2: Paleontological Resources.** If potential paleontological resources are detected during construction, work shall stop, and consultation is required to avoid further impacts. Actions after work stoppage will be designed to avoid significant impacts to the greatest extent feasible. These measures could include construction worker education, consultation with a qualified paleontologist, coordination with experts on resource recovery and curation of specimens, and other measures.

Yuba County Grading, Drainage, and Erosion Control Ordinance

Yuba County’s Grading, Drainage, and Erosion Control Ordinance (County Code, Title XI, Chapter 11.25) was enacted for the purpose of safeguarding public welfare; ensuring that site uses are consistent with the general plan, storm water management plan, and applicable building codes; and protecting water quality and reducing the discharge of pollutants into county stormwater drainage systems. The ordinance identifies administrative procedures, minimum standards of review, and implementation and enforcement procedures to control erosion and sedimentation directly related to land-grading activities.

Yuba County Improvement Standards

Construction of public improvements in Yuba County is governed primarily by the County of Yuba Department of Public Works Improvement Standards (Yuba County 1994). Sections 9 and 11 of those standards regulate design of stormwater drainage and grading, respectively.

3.8.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended.

Geology and Soils

Implementing the project would result in a significant impact related to geology and soils if it would result in any of the following:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure (including liquefaction), or landslides
- Result in substantial soil erosion or the loss of topsoil
- 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
- Be located on expansive soil, creating substantial direct or indirect risks to life or property
- 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

Paleontological Resources

Implementing the project would result in a significant impact on paleontological resources if it would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. For the purposes of this analysis, a unique paleontological resource or site is one that is considered significant under professional paleontological standards. An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it is any of the following:

- A type specimen (i.e., the individual from which a species or subspecies has been described)
- A member of a rare species
- A species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn
- A skeletal element different from, or a specimen more complete than, those now available for its species
- A complete specimen (i.e., all, or substantially all, of the entire skeleton is present)

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates are generally common; their fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

Analysis Methodology

This evaluation of potential impacts relies on a review of published geological and paleontological literature and maps and soil survey data for Yuba County and the NRCS. In its standard guidelines for assessment and mitigation of adverse impacts on paleontological

resources, the SVP (2010) established four categories of sensitivity (potential) for paleontological resources: high potential, low potential, no potential, and undetermined potential. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted them. Rock units that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Rock units that have not had any previous paleontological resource surveys or fossil finds are of undetermined potential until surveys and mapping are performed to determine their sensitivity. Rock units that have no potential to contain vertebrate fossils are almost always non-sedimentary. The project site contains two rock units that have high potential for paleontological resources, the Modesto and Riverbank formations. Both are sedimentary units that have previously yielded vertebrate fossils.

Issues Not Discussed Further

Surface Fault Rupture. Because the project site is not located within an Alquist-Priolo Earthquake Fault Zone and there are no known active faults on or adjacent to the project site, fault ground rupture is very unlikely, and this issue is not discussed further.

Landslides. Because the project would be implemented on a site with flat topography, there would be no impact related to landslides, and this issue is not discussed further.

Soil Suitability for Septic Systems. Because the project would not include wastewater disposal systems of any kind, there would be no impact related to the ability of project site soils to support septic systems, and this issue is not discussed further.

Potential Destruction of Unique Geologic Features. There are no unique geological features that would be impacted by the proposed project. Therefore, this impact is not discussed further.

Impact Analysis and Mitigation Measures

Impact 3.8-1: Impacts from Seismic or Soil Hazards.

The Sacramento Valley has historically experienced very low levels of seismic activities. The project area is not located within a known fault zone or near any faults known to be active during Holocene time. The nearest known potentially active fault is approximately 16 miles from the project site, and other faults that have been classified as “active” by CGS are 30 to 40 miles away. In addition, the project site is an area of low earthquake hazard on the CGS map of earthquake shaking potential (Branum et al. 2016). Some soils located at the project site could be subject to ground failure if strong ground shaking were to occur due to their moderately expansive properties (NRCS 2021). However, the site is relatively flat so this would not present a concern to public safety. Most importantly, the project is being designed in accordance with USACE seismic stability engineering standards and based on site-specific geotechnical information. Design considerations include meeting or exceeding standards related to stability,

ground shaking, liquefaction, and subsidence. Including consistency with USACE’s guidelines contained in Engineering Manual 1110-2-1913, Design and Construction of Levees (USACE 2000), and any other applicable USACE engineering guidance (e.g., ETL 1110-2-569, Design Guidance for Levee Underseepage [USACE 2005] and ETL 1110-2-555, Design Guidance on Levees [USACE 1997]). Therefore, the project would result in a **less-than-significant** impact related to seismic and soil hazards.

Mitigation Measures: No mitigation is required.

Impact 3.8-2: Increased Risk from Erosion Hazard.

Project construction would include ground disturbance associated with levee construction and raising and seepage remediation. Project-related earth-moving activities would result in temporary and short-term disturbance of soil and could expose disturbed areas to storm events. Rainfall of sufficient intensity could dislodge soil particles from the soil surface. If particles are dislodged and the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during summer could result in substantial loss of topsoil because of wind erosion. Depending on the severity of storm and wind events, soil erosion and topsoil loss could be substantial and is considered a **potentially significant** impact.

Mitigation Measures: Mitigation Measure 3.8-2 has been identified to address this impact.

Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion.

In addition to compliance with all applicable Federal, State, and local regulations, TRLIA will implement the following measures to further reduce construction-related erosion:

- Construction activities would likely be subject to construction-related stormwater permit requirements of the NPDES program. Any permits by the CVRWQCB will be obtained by TRLIA before any ground-disturbing construction activity. A SWPPP will be prepared and implemented that identifies BMPs to prevent or minimize the introduction of contaminants into surface waters. Such BMPs could include, but would not be limited to, silt fencing, straw bale barriers, fiber rolls, storm drain inlet protection, hydraulic mulch, and a stabilized construction entrance. The SWPPP will include development and implementation of site-specific structural and operational BMPs to prevent and control impacts on runoff quality, measures to be implemented before each storm event, inspection and maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means.
- Water (e.g., trucks, portable pumps with hoses) will be used to control fugitive dust during construction activities that could cause substantial wind erosion.

Timing: Before and during construction.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measure 3.8-2 would reduce the potentially significant impact of construction-related erosion because a SWPPP with BMPs designed to prevent and control soil erosion from construction areas would be implemented. Therefore, the project would have a **less-than-significant impact with mitigation incorporated**.

Impact 3.8-3: Potential Damage to or Destruction of Unique Paleontological Resources.

Most of the project site is in Holocene-age natural levee, channel, and basin deposits (Helley 1979, Marchand and Allwardt 1981, Helley and Harwood 1985, Saucedo and Wagner 1992). These sediments are geologically young and subject to past and present erosion and periodic shifts during high-water events. Moreover, because of their Holocene age, they are not fossil-bearing.

Pleistocene-age deposits of the Modesto and Riverbank Formations (Helley and Harwood 1985) also occur in the project area. The Modesto Formation is known for containing vertebrate fossils (Hutchison 1987; Jefferson 1991a, 1991b). Though no vertebrate fossils have yet been recovered from Yuba County, several Modesto Formation localities that have yielded many vertebrate specimens of Late Pleistocene are known from elsewhere in the Central Valley. The Riverbank Formation is also known for containing numerous vertebrate fossil localities throughout the Central Valley (Junto and Croft 1967; Jefferson 1991a, 1991b; Hilton et al. 2000). Several nearby localities, such as the Arco Arena site and the Teichert Gravel Pit sites within approximately 30 miles of the project site, have yielded important Late Pleistocene faunas, including numerous fossils recovered from as little as 13 feet below the ground surface (Hilton et al. 2000).

Installing relief wells and constructing cutoff walls would disturb sediments mapped at the surface as Holocene basin, natural levee, or channel, which have a high probability to include Modesto or Riverbank Formation deposits. Because a large number of fossils have been recovered from both the Modesto and Riverbank Formations, including at nearby locations and relatively shallow depths, these geologic units are considered to have high paleontological sensitivity. Therefore, the potential for damage to or destruction of unique paleontological resources during construction would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measure 3.8-3 has been identified to address this impact.

Mitigation Measure 3.8-3: Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan as Required.

TRLIA and its construction contractor(s) will implement the following measures to minimize potential adverse effects on previously unknown, potentially unique, and scientifically important paleontological resources:

- Before the start of any earthmoving activities, TRLIA will retain a qualified paleontologist or archaeologist to train all construction personnel involved with earthmoving activities that would disturb at least 5 vertical feet in areas of sensitive geologic deposits, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.
- If paleontological resources are discovered during earthmoving activities, the construction crew will immediately cease work in the vicinity of the find and notify TRLIA. TRLIA will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with SVP guidelines (SVP 2010). The recovery plan might include, but would not be limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by TRLIA to be necessary and feasible will be implemented before construction activities can resume at the site where the paleontological resources were discovered.

Timing: Before and during ground-disturbing activities.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measure 3.8-3 would reduce potentially significant impacts related to damage to or destruction of unique paleontological resources because construction workers would be alerted to the possibility of encountering paleontological resources, and if resources were encountered, fossil specimens would be recovered and recorded and would undergo appropriate curation in accordance with SVP guidelines. Therefore, the project would have a **less-than-significant impact with mitigation incorporated**.

Residual Significant Impacts

Mitigation measures that would reduce potentially significant impacts related to geology, soils, and paleontological resources to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant impacts related to these resources.

3.9 Greenhouse Gas Emissions

This section provides a background discussion of climate change, discusses existing sources of GHG emissions, summarizes applicable regulations, assesses GHG emissions that would be generated by the project components, and identifies mitigation measures to reduce project emissions.

3.9.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. GHG emissions have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the earth's atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on the earth.

GHGs are present in the atmosphere naturally, released by natural and anthropogenic (human-caused) sources, and formed from secondary reactions taking place in the atmosphere. The following GHGs are widely accepted as the principal contributors to human-induced global climate change: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Natural sources of CO₂ include organic matter decomposition, animal and plant respiration, and ocean evaporation. Anthropogenic sources include burning coal, oil, natural gas, and wood. CH₄ is the main component of natural gas and is associated with agricultural practices and landfills. N₂O is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices. HFCs are synthetic chemicals used as a substitute for chlorofluorocarbons in automobile air conditioners and refrigerants. PFCs are produced as a byproduct of various industrial processes associated with aluminum production and semiconductor manufacturing. SF₆ is an inorganic, odorless, colorless, nontoxic, and nonflammable GHG used for insulation in electric power transmission and distribution equipment and in semiconductor manufacturing.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO₂. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The reference gas for GWP is CO₂, which has a GWP of 1. According to standards set at the 2012 United Nations Climate Change Conference, CH₄ has a GWP of 21, and N₂O has a GWP of 310. Therefore, 1 ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂. GHGs with lower emission rates than CO₂ may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO₂ (i.e., they have a high GWP). The concept of

CO₂-equivalents (CO₂e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

GHG emissions related to human activities are likely responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (Intergovernmental Panel on Climate Change [IPCC] 2013). Similarly, impacts of GHGs are borne globally, as opposed to the more localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, no single project alone is expected to measurably contribute to a noticeable incremental change in the global average temperature or to a global climate, local climate, or microclimate. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies evaluate the cumulative impacts of GHGs, even relatively small additions, on a global basis.

Trends of Climate Change

Warming of the climate system is now considered to be unequivocal (IPCC 2013), with global surface temperature having increased approximately 1.33°F over the last 100 years. The rate of this increase has not been consistent, with the last 3 decades have warmed at a much faster rate—on average 0.32°F per decade. Continued warming is projected to increase the global average temperature by 2°F to 11°F over the next 100 years.

Natural processes and human actions cause global warming. The IPCC concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming from preindustrial times to 1950 and had a small cooling effect afterward. However, after 1950, increasing GHG concentrations resulting from human activity, such as increasing fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase.

Impacts of Climate Change

Over the same period that increased global warming has occurred, many other changes have occurred or are predicted to occur in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have risen, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence within the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2013).

Greenhouse Gas Emission Sources

For purposes of accounting for and regulating GHG emissions, sources of GHG emissions are grouped into emission categories. CARB identifies the following categories, which account for most anthropogenic GHG emissions generated in California:

- **Transportation:** On-road motor vehicles, recreational vehicles, aviation, ships, and rail
- **Electric Power:** Use and production of electrical energy
- **Industrial:** Mainly stationary sources (e.g., boilers and engines) associated with process emissions
- **Commercial and Residential:** Area sources, such as landscape maintenance equipment, fireplaces, and consumption of natural gas for space and water heating
- **Agriculture:** Agricultural sources that include off-road farm equipment; irrigation pumps; crop residue burning (CO₂); and emissions from flooded soils, livestock waste, crop residue decomposition, and fertilizer volatilization (CH₄ and N₂O)
- **High GWP Gases:** Refrigerants for stationary and mobile source air conditioning and refrigeration, electrical insulation (e.g., SF₆), and various consumer products that use pressurized containers
- **Recycling and Waste:** Waste management facilities and landfills; primary emissions are CO₂ from combustion and CH₄ from landfills and wastewater treatment

3.9.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

Federal Clean Air Act

EPA is the Federal agency responsible for implementing the Federal CAA. On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Federal Supreme Court found that GHGs are air pollutants covered by the Federal CAA and that EPA has the authority to regulate GHGs. The court held that the EPA Administrator must determine whether GHG emissions from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

Greenhouse Gas Findings under the Clean Air Act

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Federal CAA:

- **Endangerment finding.** The EPA Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere threaten the public health and welfare of current and future generations.

- **Cause or contribute finding.** The EPA Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

State Plans, Policies, Regulations, and Laws

With the passage of legislation, including Senate and Assembly bills and executive orders (EOs), California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the State level.

Assembly Bill 1493

AB 1493 requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emission standards were designed to apply to automobiles and light trucks beginning with model year 2009. In 2009, the EPA Administrator granted a Federal CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies worked with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 to 2025.

Executive Order S-3-05

EO S-3-05 included the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050 reduce GHG emissions to 80 percent below 1990 levels. This EO directs the California Environmental Protection Agency (CalEPA) Secretary to develop and lead a climate action team of State agency representatives and report on the progress made toward meeting the targets to the Governor and the Legislature.

Assembly Bill 32

AB 32, the California Global Warming Solutions Act of 2006, was signed in September 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on Statewide GHG emissions. It requires that Statewide GHG emissions be reduced to 1990 levels by 2020. In December 2008, CARB adopted its Climate Change Scoping Plan (Scoping Plan) (CARB 2008), which contains the main strategies California will implement to achieve the GHG reductions required by AB 32. The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of the State's GHG inventory. CARB further acknowledges that decisions about how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors.

CARB is required to update the Scoping Plan at least once every 5 years to evaluate progress and develop future inventories that may guide this process. CARB has updated the Scoping Plan twice. The first Scoping Plan update was adopted in May 2014, and the second Scoping Plan update was adopted in November 2017. The Scoping Plan will be updated again in 2022.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a Statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

Senate Bill 97 (Chapter 185, 2007)

SB 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 required the Governor's Office of Planning and Research to recommend amendments to the State CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Executive Order S-13-2008

EO S-13-08 required the National Academy of Sciences to complete a California Sea Level Rise Assessment Report. The EO also dictates that the California Ocean Protection Council shall work with DWR, the California Energy Commission, California's coastal management agencies, and SWRCB to conduct a review of the Assessment Report every 2 years, or as necessary. California adopted its 2009 Climate Adaptation Strategy (CNRA 2009) in response to this EO; the strategy is used to prepare, plan, and respond to future detrimental effects of climate change.

Regional and Local Plans, Policies, Regulations, and Ordinances

CARB's Scoping Plan states that local governments are "essential partners" in the effort to reduce GHG emissions (CARB 2008). It also acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce GHG emissions rely on local government actions.

Feather River Air Quality Management District

FRAQMD has not established regulations relative to GHG emissions for residential, commercial, or industrial projects. However, as discussed below under "Thresholds of Significance," FRAQMD provides recommendations for resources that should be used to evaluate GHG emissions.

Yuba County 2030 General Plan

The following goals and policies from the Yuba County 2030 General Plan are relevant to the proposed project, GHG emissions, and climate change (Yuba County 2011).

GOAL HS 5: Greenhouse Gas Emissions and Climate Change. Provide greenhouse-gas efficient development patterns and successfully adapted to future changes in Yuba County's climate.

- **Policy HS 5.6.** The County relies in part, on infrastructure planning and funding controlled by regional, state, and other local agencies, and will work cooperatively with these agencies to provide infrastructure and public facilities needed to support GHG-efficient development patterns.

3.9.3 Environmental Impacts and Mitigation Measures

The proper context for addressing GHG emissions in an EIR is within an assessment of cumulative impacts because, although it is unlikely that a single project would contribute significantly to climate change, cumulative emissions from many projects could impact global GHG concentrations and the climate system. As discussed above, unlike criteria air pollutants and TACs that are pollutants of localized or regional concern, the location where GHG emissions are generated is not much of a concern. Rather, the total amount and types of GHG emissions ultimately have a cumulative effect on climate change. Therefore, this analysis of GHG emissions is inherently a cumulative analysis.

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. The project would result in a significant impact related to climate change if it would result in either of the following:

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

FRAQMD has not established quantitative significance thresholds for evaluating GHG emissions in CEQA analyses. Instead, FRAQMD, in its Indirect Source Review Guidelines, recommends using the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change* white paper (CAPCOA 2008) and other resources when developing GHG evaluations (FRAQMD 2010). The white paper provides a common platform of information and tools to support local governments and was prepared as a resource, not as a guidance document. However, Section 15064.4 of the State CEQA Guidelines expressly provides that a “lead agency shall have discretion to determine, in the context of a particular project,” whether to “[u]se a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use.” A lead agency also has discretion under the State CEQA Guidelines to “[r]ely on a qualitative analysis or [quantitative] performance-based standards.”

In its 2008 white paper, CAPCOA analyzed various approaches and significance thresholds that a lead agency could choose to adopt but concluded that any residential, commercial, or industrial project that would generate more than 900 metric tons (MT) of CO₂e per year would make a cumulatively considerable incremental contribution to climate change. Since that time, air districts and local agencies in California have adopted various thresholds to evaluate GHG

emissions associated with proposed projects. In the absence of a local threshold, this analysis uses the Sacramento Metropolitan Air Quality Management District (SMAQMD) threshold of 1,100 MT CO₂e annually for construction-related GHG emissions (SMAQMD 2015). This is the most relevant adopted CEQA threshold, based on the project location and predominance of construction-related GHG emissions, as opposed to operational emissions. Furthermore, GHG emissions are not localized; to the contrary the primary environmental impact of GHG emissions—climate change—is a global impact. Accordingly, it is appropriate to use a data-based threshold from another jurisdiction to measure the significance of GHG impacts.

Analysis Methodology

The Road Construction Emissions Model, Version 9.0.0, was used to estimate emissions associated with project construction activities. Construction-related exhaust emissions for the proposed project were estimated for construction worker commutes, haul trucks, and the use of off-road equipment. All construction assumptions used to estimate criteria air pollutant and precursor emissions in Chapter 3.4, “Air Quality,” were also used to estimate GHG emissions.

Impact Analysis and Mitigation Measures

Table 3.9-1 presents unmitigated GHG emissions from construction-related activities. GHG modeling data summarized in this section are provided in **Appendix C, “Air Quality and GHG Emissions Modeling Report.”**

Table 3.9-1. Estimated Construction-Related Greenhouse Gas Emissions

Project Component	MT of CO ₂ e per Year	SMAQMD Threshold (1,100 MT) of CO ₂ e per Year Exceeded?
Goldfields West Levee	2,164.66	Yes
Yuba River South Levee	1,425.37	Yes
Feather River East Levee	921.13	No
Bear River North Levee/Bear River Setback Levee	652.52	No
Western Pacific Interceptor Canal West Levee	3,165.25	Yes
Western Pacific Interceptor Canal West Levee Extension	3,546.57	Yes
Total Emissions of All Project Components	11,875.50	Yes

Notes: CO₂e/year=carbon dioxide equivalent per year; MT=metric tons; SMAQMD=Sacramento Metropolitan Air Quality Management District

Source: KD Anderson & Associates, Inc. 2021

Impact 3.9-1: Direct Emission of Greenhouse Gases from Construction Activities

The proposed project would directly emit GHGs during construction activities. Construction-related emissions were estimated for off-road construction equipment, on-road haul trucks and delivery vehicles, and construction worker commutes. Total construction-related GHG emissions for all project components would exceed the SMAQMD construction threshold of 1,100 MT of CO₂e per year during construction. Although two of the project components (Feather River East Levee and Bear River North Levee/Bear River Setback Levee) would not exceed this threshold, it is unlikely that only one of these project components would be constructed in a given year.

The proposed project would generate minimal GHG emissions above current conditions during operations because routine O&M activities would continue as under current conditions. The Goldfields West Levee and WPIC West Levee Extension would be incorporated into the existing levee O&M activities; all proposed O&M activities are currently provided on the existing levees.

Because project construction in a given year is likely to include at least one component that would individually exceed the SMAQMD threshold, or two components that, when combined, exceed the threshold, generation of construction-related GHG emissions would be a **significant impact**.

Mitigation Measures: Mitigation Measures 3.4-1a and 3.4-1b would partially address this impact; Mitigation Measure 3.9-1 has been identified to further address it.

Mitigation Measure 3.4-1a: Implement FRAQMD Construction Phase Mitigation Measures.

Please *refer to* Mitigation Measure 3.4-1a in Impact 3.4-1 of Section 3.4, “Air Quality,” for full text of this mitigation measure.

Mitigation Measure 3.4-1b: Reduce Construction-related Exhaust Emissions, Document Equipment Use and Worker Vehicle Trips, and Calculate Project Construction Emissions.

Please *refer to* Mitigation Measure 3.4-1b in Impact 3.4-1 of Section 3.4, “Air Quality,” for full text of this mitigation measure.

Mitigation Measure 3.9-1: Acquire Carbon Offset Credits that are Demonstrably Real, Permanent, Additional, Quantifiable, Verifiable, and Enforceable for Emissions that Exceed the SMAQMD Threshold.

TRLIA will acquire carbon offset credits equal to construction-related GHG emissions that exceed the annual SMAQMD significance threshold of 1,100 MT of CO₂e, based on actual construction emissions calculated after project construction is complete. Carbon offset credits will comply with CARB’s Cap-and-Trade program and will be purchased from an accredited carbon credit market. Offset credits must be registered with, and retired by an Offset Project Registry, as defined in 17 CCR Section 95802(a), that is approved by CARB, such as, but not limited to, Climate Action Reserve, American Carbon Registry, or Verra (formerly Verified Carbon Standard), that is recognized by the Climate Registry, a non-profit organization governed by U.S. states and Canadian provinces and territories. To demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 CCR Section 95802(a), TRLIA will document the protocol used to verify the credits and submit the documentation for approval to a CARB-accredited third-party verification entity. If the verification entity finds that any credits purchased did not meet these criteria, TRLIA will purchase alternative credits and submit a follow-up report to

the verification entity for concurrence. All carbon offsets purchased will be tracked through the Climate Registry.

Timing: Before construction activities begin, during construction activities, and after construction activities are complete.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measures 3.4-1a and 3.4-1b would reduce GHG emissions from construction equipment used for the proposed project. GHG emission reductions are not estimated with implementation of Mitigation Measure 3.4-1a and 3.4-1b because it is uncertain to what extent these measures can be implemented; however, it is anticipated that the proposed project would still generate project total GHG emissions above the SMAQMD significance threshold. Implementing Mitigation Measure 3.9-1 requires purchase of off-site construction mitigation credits to reduce GHG emissions to below SMAQMD's construction threshold of 1,100 MT CO₂e per year. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.9-2: Conflict with a Greenhouse Gas Emission Reduction Plan.

TRLIA has not adopted a climate change or GHG reduction plan with which the proposed project would conflict, and Yuba County does not have any applicable plans, policies, or regulations regarding GHG emissions. CARB's 2017 Scoping Plan identifies measures that would indirectly address GHG emissions from construction activities, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of EO B-30-15 that apply to construction-related activities, either directly or indirectly, are assumed to be implemented Statewide and would affect the proposed project. The proposed project's construction emissions would comply with any mandate or standards set forth by the 2017 Scoping Plan.

Although implementing the proposed project would cause temporary construction-related GHG emissions, the intent, purpose, and function of this project align with the goals of the 2017 Scoping Plan related to protecting against the detrimental effects of climate change (i.e., increased frequency and magnitude of flood events). The 2009 Climate Adaptation Strategy (CNRA 2009) is the most current plan adopted to address the effects of climate change. Although it is not a GHG reduction plan, it provides guidance on how to respond to detrimental climate change effects that would result in additional GHG emissions. Flooding events that damage or destroy homes and other infrastructure would result in future GHG-intensive activities, such as cleaning up after the flood, rebuilding houses, and reinstalling infrastructure. Accordingly, the 2009 Climate Adaptation Strategy recommends upgrading and raising levees and other flood-risk reduction structures. The proposed project is consistent with this recommendation and a primary project objective is to achieve greater climate resiliency for the RD 784 levee system. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

Mitigation measures that would reduce significant GHG impacts to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant GHG impacts.

3.10 Hazards and Hazardous Materials

This section discusses the existing setting for hazards and hazardous materials in the project vicinity, describes applicable regulations, analyzes potential project impacts related to hazards and hazardous materials, and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level.

3.10.1 Environmental Setting

Existing Uses of the Project Area and Vicinity

The project area is primarily rural in nature and includes rural residential and agricultural areas. Areas where agricultural land is currently in production are likely regularly exposed to pesticides, herbicides, and other chemicals used in typical agricultural production. Residential developments, including one in active construction, are located adjacent to the Yuba River South Levee, WPIC West Levee, and Bear River North Levee.

Active aggregate mining operations are present in the Goldfields, north and east of the proposed Goldfields West Levee. Western Aggregate holds vested mining rights on 3,900 acres of land in the Yuba Goldfields. Additionally, Kino Aggregates operates an active aggregate mining operation on approximately 364 acres in western portion of the Goldfields, including adjacent to the project site. De Silva Gates Construction also operates the Dantoni Hot Mix Asphalt Plant on this site. Western Aggregates and Kino Aggregates existing operations consist primarily of sand and gravel removal and processing.

Roadways, bridges, and railroad tracks that intersect the project site include Dantoni Road, Plumas-Arboga Road and bridge, and the UPRR. Dantoni Road intersects the Yuba River South Levee near station 164+50, Plumas-Arboga Road and bridge intersect the WPIC West Levee near station 190+00, and the UPRR tracks are parallel to and abut the WPIC West Levee from station 0+00 to approximate station 130+00. *See* “Site Access, Staging, and Project-related Transportation,” in Section 2.4, “Description of Proposed Project,” for a list of existing roadways that would be used to access the project site.

Hazardous Materials Sites

The Goldfields West Levee portion of the proposed project would be implemented on and using mine existing tailings composed of sand, cobble, and gravel. Historic gold mining activities that occurred in the Goldfields uses mercury. Because potential project hazards related to residual mercury (or generation of methylmercury that could occur from ponding) pertain primarily to water quality, mercury-related issues are addressed in Section 3.11, “Hydrology and Water Quality.”

A database search was conducted of all data sources in the Cortese List (enumerated in PRC Section 65962.5), including: the GeoTracker database, a groundwater information management system maintained by SWRCB; the Hazardous Waste and Substances Site List (i.e., the

EnviroStor database) maintained by the California Department of Toxic Substances Control (DTSC); and EPA's Superfund Site database (DTSC 2021; SWRCB 2021a, 2021b; CalEPA 2021). There is one open case of hazardous materials sites identified within 0.25 mile of the project site. This open active case—a potential spill of solvent wastes at a mining facility in the Goldfields operated by Triangle Engineering—is located adjacent to the Goldfield West Levee portion of the project site. This old case (from 1988) was referred to another agency in 1996; the disposition of the case is unclear.

The project site is not in an area mapped as ultramafic rock, which has been determined to be more likely than other rock types to contain naturally occurring asbestos (DOC 2000).

Schools

The Linda Elementary School is located approximately 0.20 mile south of the Yuba River South Levee. There are several schools located within the cities of Marysville, Yuba City, Linda, Olivehurst, and Arboga, but none are within 0.25 mile of the project site.

Airports and Airstrips

The Sutter County Airport and the Yuba County Airport are located approximately 3 miles west and 2.75 miles south, respectively, of the Yuba River South Levee. A small airstrip, the Hammonton airstrip is located approximately 4.30 miles east of the Goldfields West Levee. Additionally, Beale AFB is located on the south side of Hammonton-Smartville Road, approximately 3 miles southeast of the Yuba River South Levee and Goldfields West Levee.

Wildland Fire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) has established a fire hazard severity classification system to assess the potential for wildland fires. The zones depicted on CAL FIRE maps consider potential fire intensity and speed, production and spread of embers, fuel loading, topography, and climate (e.g., temperature and the potential for strong winds). The classification system provides three classes of fire hazards: Moderate, High, and Very High. According to CAL FIRE (2007a), the project area is located in a moderate fire hazard severity zone.

PRC Sections 4125–4137 require the designation of State Responsibility Areas (based on the amount and type of vegetative cover, beneficial water uses, probable erosion damage, fire risks, and hazards) where the financial responsibility of preventing and suppressing fires falls primarily on the State of California. Fire protection outside these areas is the responsibility of local or Federal agencies. The project site is located within a Local Responsibility Area (CAL FIRE 2007a and 2007b).

3.10.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to hazards or hazardous materials apply to the proposed project.

State Plans, Policies, Regulations, and Laws

Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) is primarily responsible for developing and enforcing workplace safety regulations in the State. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) require employers to provide safety training and safety equipment, conduct accident and illness prevention programs, warn against hazardous-substance exposure, and prepare emergency action and fire prevention plans.

Cal/OSHA also enforces hazard-communication program regulations that contain training and information requirements. Companies must establish procedures to identify and label hazardous substances, communicate information about hazardous substances and their handling, and prepare health and safety plans to protect workers and employees at hazardous-waste sites. Employers must make material safety data sheets available to employees and document employee information and training programs.

California Environmental Protection Agency

One of the primary agencies that regulates hazardous materials is the CalEPA, which is authorized by EPA to enforce and implement Federal laws and regulations regarding hazardous materials. DTSC, which is a department of CalEPA, protects California and Californians from exposure to hazardous waste, primarily under the authority of the Federal Resource Conservation and Recovery Act and the HSC. DTSC requirements include preparing written programs and response plans, such as hazardous materials business plans. DTSC programs also include dealing with aftermath cleanups of improper hazardous waste management; evaluating samples taken from sites; enforcing regulations regarding the use, storage, and disposal of hazardous materials; and encouraging pollution prevention.

Hazardous Waste Control Act of 1972

The Hazardous Waste Control Act (HSC Section 25100 et seq.) creates the framework for managing hazardous wastes in California. It requires that a Statewide hazardous waste program be developed to administer and implement the provisions of the Federal Resource Conservation and Recovery Act. The Hazardous Waste Control Act also designates California-only hazardous wastes and includes standards (regulations) that are equal to or, in some cases, more stringent than Federal requirements. The act lists allowable exemptions and requirements for recycled materials and for other materials, such as launderable rags.

DTSC administers and implements the provisions of the Hazardous Waste Control Act at the State level, pursuant to EPA's authorization. Certified unified program agencies, which are typically local agencies, implement some provisions of the act locally.

DTSC requires preparation of written programs and response plans, such as hazardous materials business plans. DTSC's programs also include implementing aftermath cleanup after improper management of hazardous waste; evaluating samples taken from sites; enforcing regulations regarding use, storage, and disposal of hazardous materials; and encouraging pollution prevention.

California Government Code Section 65962.5

The provisions of California Government Code Section 65962.5 are commonly referred to as the "Cortese List" (after the legislator who authored the legislation that enacted it). The Cortese List is a planning document used by State and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires CalEPA to develop an updated Cortese List annually, at minimum. DTSC and SWRCB are responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. CEQA requires an evaluation as to whether a project would be located on a hazardous materials site that is included on the Cortese List.

California Emergency Services Act

The California Emergency Services Act provides the basic authority for conducting emergency operations following a proclamation of emergency by the governor and/or appropriate local authorities. Local government and district emergency plans are considered extensions of the California Emergency Plan, established in accordance with the Emergency Services Act.

The California Emergency Management Agency (Cal EMA) is the State agency responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. Cal EMA regulates businesses by requiring specific businesses to prepare an inventory of hazardous materials (CCR Title 19). Cal EMA is also the lead State agency for emergency management and is responsible for coordinating the State-level response to emergencies and disasters.

Regional and Local Plans, Policies, Regulations, and Ordinances

Yuba County 2030 General Plan

The following goals and policies from the Yuba County 2030 General Plan Public Health and Safety Element are relevant to the proposed project (Yuba County 2011).

GOAL HS-7: Hazards and Hazardous Materials. Protect the community from the harmful effects of hazards and hazardous materials.

- **Policy HS 7.1.** The County will assess risks associated with public investments and other County-initiated actions, and new private developments shall assess and mitigate hazardous materials risks and ensure safe handling, storage, and movement in compliance with local, State, and Federal safety standards.

GOAL HS 9: Emergency Preparedness and Response. Minimize the loss of life and damage to property from natural and human-caused hazards by ensuring adequate emergency routes and response.

- **Policy HS 9.1.** The County will review development projects, plans, and public investment decisions to ensure consistency with the Multi-Hazard Mitigation Plan.
- **Policy HS 9.3.** The County will coordinate with Caltrans to maintain Highways 20, 70, 49, and 65 in the lower half of the County and the County will maintain Marysville Road, Frenchtown Road, and La Porte-Quincy Road in the upper half of the County as primary emergency access and evacuation routes and improve other roads, as necessary, such as Plumas Arboga Road, to create additional evacuation routes.

Yuba County Emergency Operations Plan

The purpose of the County of Yuba Emergency Operations Plan (EOP) is to address the County's planned response to emergencies associated with natural, man-made, and technological disasters. The EOP provides an overview of operational concepts and identifies components of the County's emergency management organization within the Standardized Emergency Management System and the National Incident Management System. Additionally, it further describes the overall responsibilities of the local, State, and Federal entities for protecting life and property and assuring the overall well-being of the population. (Yuba County 2015a.)

Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan

The purpose of the Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan (MHMP) is to guide and assist Yuba County with implementing effective hazard mitigation strategies, projects, and measures to protect lives and reduce damage to property and the environment. The MHMP provides a forum for information sharing and resource coordination to identify a strategy to prevent losses and damage from disasters in Yuba County. The Disaster Mitigation Act of 2000 requires hazard mitigation planning in the Stafford Disaster Relief and Emergency Assistance Act. Local governments and entities are required to develop and submit hazard mitigation plans to be eligible to apply for Federal hazard mitigation disaster assistance funding. (Yuba County 2015b.)

3.10.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended.

Implementing the project would result in a significant impact related to hazards and hazardous materials if it would result in any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- 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
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment
- Result in a safety hazard or excessive noise for people residing or working in a project area that is within an airport land use plan area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures, either directly or indirectly to a significant risk of loss, injury, or death involving wildland fires

Analysis Methodology

Potential impacts on the environment related to hazards and hazardous materials were evaluated based on the type and location of anticipated project-related construction and O&M activities. The analysis was based on review of publicly available information and databases related to existing land uses, schools, wildfire hazard zones, and known soil and/or groundwater contamination sites within and near the project site.

During the NOP comment period, TRLIA received a letter from DTSC outlining measures necessary to minimize risks related to hazardous materials. These recommendations have been considered and incorporated where appropriate into the project and this analysis.

Issues Not Discussed Further

Routine Transport, Use, or Disposal of Hazardous Materials. The project would involve the incidental transport and use of common construction materials such as oils, lubricants, and gasoline. Potential impacts of accidental spills associated with this incidental use are analyzed in Impact 3.10-1. However, the project would not involve routine or long-term transport of such materials, and none of the project components would involve the transport or use of acutely hazardous materials. Therefore, no impact would occur related to routine transport, use, or disposal of hazardous materials, and this issue is not discussed further.

Location on a Cortese-listed Site. The project site is not included on the lists of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. The nearest listed site is approximately 0.22 mile west of the project site. Therefore, no impact related to a Cortese-listed site would occur, and this issue is not discussed further.

Conflict with an Airport Land Use Plan or Location Within 2 Miles of an Airport Resulting in Excessive Noise. The project site is not located in an airport land use plan area or within 2 miles of an airport. There would be no conflicts with an airport land use plan or generation of excessive noise, and this issue is not discussed further.

Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires. The proposed project is not located within a very high fire severity zone as designated by the CALFIRE. Additionally, the proposed project would not increase the risk of wildland fires during project construction or O&M. Therefore, no impact would occur, and this issue is not discussed further.

Impact Analysis and Mitigation Measures

Impact 3.10-1: Possible Accidental Spills of Hazardous Materials used during Construction Activities.

The project would not entail any unusual risks associated with the transport and handling of hazardous materials. Borrow material would be imported from commercial off-site sources assured to be free of contamination, or the construction contractor would be required to demonstrate any directly-sourced material is free of contamination. In addition, standard environmental site assessments would be conducted as appropriate, including to evaluate potential for hazardous materials in mining tailings in or imported to the Goldfields West Levee portion of the project and hazardous concentrations of organochlorinated pesticides in areas where orchard removal would occur. Construction activities would use minor amounts of hazardous materials, such as fuels (gasoline and diesel), oils and lubricants, and cleaners (which could include solvents and corrosives in addition to soaps and detergents) that are commonly used in construction projects.

The project would not entail the use or storage of large quantities of hazardous or flammable materials. Contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction. However, fuel leaks, or any other accidental hazardous materials spill from construction equipment or materials, could potentially lead to the release of hazardous material into the environment. This is primarily a concern where the project site is adjacent to waterways, such as the WPIC and Bear River. If accidental spills of hazardous materials were to occur, these waterways could quickly transport the materials downstream. Therefore, potential for accidental spill of hazardous materials would be a **potentially significant** impact.

Mitigation Measures. Mitigation Measure 3.10-1 has been identified to address this impact.

Mitigation Measure 3.10-1: Implement a Spill Prevention Control and Countermeasures Plan and Other Measures to Reduce the Potential for Environmental Contamination during Construction Activities.

In addition to compliance with all applicable Federal, State, and local regulations, TRLIA will implement the measures described below to further reduce the risk of accidental spills and protect the environment.

- **Prepare and Implement a Spill Prevention Control and Countermeasures Plan.** A written Spill Prevention Control and Countermeasures Plan (SPCCP) will be prepared and implemented. The SPCCP and all material necessary for its implementation will be accessible onsite prior to initiation of project construction and throughout the construction period. The SPCCP will include a plan for the emergency cleanup of any spills of fuel or other material. Construction personnel will be provided the necessary information from the SPCCP to prevent or reduce the discharge of pollutants from construction activities to waters and to use the appropriate measures should a spill occur. In the event of a spill in aquatic habitat, work will stop, and the spill will be addressed immediately with equipment such as booms to contain and absorb the spilled material. CVRWQCB will be notified within 24 hours of an in-water spill.
- **Dispose of All Construction-related Debris and Materials at an Approved Disposal Site.** All debris, litter, unused materials, sediment, rubbish, vegetation, or other material removed from the construction areas that cannot reasonably be secured will be removed daily from the project work area and deposited at an appropriate disposal or storage site.
- **Use Safer Alternative Products to Protect Waters.** Every reasonable precaution will be exercised to protect waters from pollution with fuels, oils, and other harmful materials. Safer alternative products (such as biodegradable hydraulic fluids) will be used where feasible.
- **Prevent Any Contaminated Construction By-products from Entering Flowing Waters; Collect and Transport Such By-products to an Authorized Disposal Area.** Petroleum products, chemicals, fresh cement, and construction by-products containing, or water contaminated by, any such materials will not be allowed to enter flowing waters and will be collected and transported to an authorized upland disposal area.
- **Prevent Hazardous Petroleum or Other Substances Hazardous to Aquatic Life from Contaminating the Soil or Entering Waters.** Gas, oil, other petroleum products, or any other substances that could be hazardous to aquatic life and resulting from project-related activities, will be prevented from contaminating the soil and/or entering waters.
- **Properly Maintain All Construction Vehicles and Equipment and Inspect Daily for Leaks; Remove and Repair Equipment/Vehicles with Leaks.** Construction

vehicles and equipment will be properly maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Vehicles and equipment will be checked daily for leaks. If leaks are found, the equipment will be removed from the site and will not be used until the leaks are repaired.

- **Refuel and Service Equipment at Designated Refueling and Staging Areas.** Equipment will be refueled and serviced at designated refueling and staging sites. All refueling, maintenance, and staging of equipment and vehicles will be conducted in a location where a spill will not drain directly toward aquatic habitat. Appropriate containment materials will be installed to collect any discharge, and adequate materials for spill cleanup will be maintained onsite throughout the construction period.
- **Store Heavy Equipment, Vehicles, and Supplies at Designated Staging Areas.** All heavy equipment, vehicles, and supplies will be stored at the designated staging areas at the end of each work period.
- **Install an Impermeable Membrane between the Ground and Any Hazardous Material in Construction Storage Areas.** Storage areas for construction material that contains hazardous or potentially toxic materials will have an impermeable membrane between the ground and the hazardous material and will be bermed as necessary to prevent the discharge of pollutants to groundwater and runoff water.
- **Use Water Trucks to Control Fugitive Dust during Construction.** Water (e.g., trucks, portable pumps with hoses) will be used to control fugitive dust during temporary access road construction.

Timing: During construction activities.

Responsibility: TRLIA.

Significance after Mitigation: Implementing Mitigation Measure 3.10-1 would reduce potentially significant construction-related impacts from accidental spills of hazardous materials during construction activities by requiring preparation and implementation of an SPCCP along with other BMPs for storage, use, and transport of hazardous materials specifically designed to prevent contamination of the environment. Therefore, the project would have a **less-than-significant impact with mitigation incorporated.**

Impact 3.10-2: *Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste Within 0.25 Mile of an Existing or Proposed School.*

The Linda Elementary School is located approximately 0.20 mile south of the Yuba River South Levee. As stated in Impact 3.10-1, construction activities would use minor amounts of hazardous materials, such as fuels, oils and lubricants, and cleaners that are commonly used in construction projects. However, these materials would be handled in compliance with applicable local, State,

and Federal laws and regulations. With adherence to these regulations, there would be no potential for such materials to affect the Linda Elementary School. Therefore, the proposed project would have a **less-than-significant** impact related to hazardous emissions or materials within 0.25 mile of a school.

Mitigation Measures: No mitigation is required.

Impact 3.10-3: Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan.

Yuba County has developed an EOP that addresses the County's planned response to emergencies associated with natural, man-made, and technological disasters. Additionally, Yuba County has developed the MHMP addressing hazard mitigation strategies, projects, and measures to protect lives and reduce damage to property and the environment.

Policy HS9.3 and Action HS9.1 in the Public Health and Safety Element of the Yuba County 2030 General Plan (Yuba County 2011) provide requirements for emergency access and evacuation routes throughout the County. The General Plan identifies SR 70 as an evacuation route. The measures identified in the Yuba County General Plan include coordination and collaboration with the MHMP. Implementing the General Plan policies and action, combined with other relevant State and local regulations, would minimize the potential for effects from potential hazards. If an emergency were to occur at the project site, TRLIA would comply with the Yuba County EOP and MHMP. Additionally, all public roadways would remain open during project construction. The proposed project would include closure structures where levees cross Dantoni Road, Plumas-Arboga Road, and the UPRR tracks. However, these closure structures would only affect vehicle or train access in the event of a flood emergency. Therefore, this impact is considered **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

Mitigation measures that would reduce potentially significant impacts related to hazards and hazardous materials to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant impacts related to these issues.

3.11 Hydrology and Water Quality

This section discusses the existing hydrology and water quality setting of the project site and vicinity; summarizes applicable regulations; analyzes potential hydrology and water quality impacts; and identifies mitigation measures to reduce potentially significant impacts.

3.11.1 Environmental Setting

The California Water Plan divides California into 10 hydrologic regions, based upon the state's major drainage basins. Each of these basins has distinct precipitation and runoff characteristics. The project area is within the Sacramento River Hydrologic Region. The region extends from Chipps Island in Solano County north to Goose Lake in Modoc County. It is bounded by the Sierra Nevada on the east, the Coast Ranges to the west, the Cascade and Trinity mountains on the north, and the Sacramento-San Joaquin River Delta on the south. (DWR 2013.)

Watersheds

Yuba River

The Yuba River drains the western slope of the Sierra Nevada and flows generally southwesterly to its confluence with the Feather River at Marysville. The main stem of the Yuba River forms at the juncture of the Middle and North Yuba rivers just south of New Bullards Bar Reservoir and is joined by the South Yuba River just a few miles downstream near Bridgeport in Nevada County, approximately 1 mile east of Yuba County. The North Yuba River upstream of New Bullards Bar Dam drains approximately 489 square miles. Flood flows are uncontrolled in large portions of the Yuba River drainage (Middle and South Forks). The mainstem Yuba River in the Marysville vicinity drains approximately 1,339 square miles. (Yuba County Water Agency [YCWA] 2008; Yuba County 2011.) The average annual unimpaired flow of the Yuba River recorded at the Smartville Gauge from 1975 to 2004 is 2,340,000 acre-feet (ac-ft), ranging from a maximum of approximately 4,700,000 ac-ft in 1995 to a minimum of approximately 360,000 ac-ft in 1977 (YCWA 2008).

The Goldfields are approximately 5 miles upstream from the confluence of the Yuba River with the Feather River. Surface water in this section of river becomes subsurface flowing through and within the aggregate. Because of the porous nature of the Goldfields mining tailings material, some river flow infiltrates during flood events and raises the surface water elevations of the numerous ponds that occur throughout the Goldfields.

Feather River

The main stem of the Feather River extends approximately 73 miles beginning at Lake Oroville Dam, through the Thermalito complex, which consists of two reservoirs, a Forebay and Afterbay, and ultimately south to the Sacramento River. The Feather River drains approximately 5,500 square miles of land at its confluence with the Bear River (MBK Engineers and Flood Control Study Team 2002). Flows in the Feather River are primarily controlled by precipitation events, and by releases from Lake Oroville and the New Bullards Bar Reservoir.

Bear River

The Bear River originates near the crest of the Sierra Nevada within the boundaries of the Tahoe National Forest. The Bear River is fed by the Drum Canal from Spaulding Lake (located on the South Yuba River), which enters the river at the Drum Afterbay, a few miles downstream of the headwaters. Downstream of the Afterbay, the Bear River enters Dutch Flat Reservoir and from there travels in an alignment roughly parallel to Interstate 80 into Rollins Reservoir. The Bear River discharges from Rollins Reservoir and flows southwest where it joins the Feather River south of Yuba City/Marysville.

The Bear River contains a large volume of mining sediment stored in its main channel that is subject to continual erosion. The high volume of mining sediment, in combination with restricting levees, has caused the Lower Bear channel to become deeply incised.

Climate

The Yuba, Feather, and Bear River watersheds encompass two different climate terrains. One typifies the high Sierra climes and the other typifies the Central Valley lowlands. The transition zone between these two climate terrains shares characteristics of each terrain. The lower elevations around Marysville experience hot, dry summers and cool winters with substantial rainfall, but never appreciable snowfall. The higher elevations where the rivers originate are characterized by significant winter snowfall accumulation at elevations over 4,000 to 5,000 feet. The snowpack then melts during the spring and early summer months, eventually giving way to warm, dry summers.

Areas of moderate elevation in the region (i.e., 500-4,000 feet) experience a mélange of the high-elevation and low-elevation climate: predominantly rainy winters with heavier precipitation than low-elevation areas, occasional snowfall with short-lived accumulation, and the ubiquitous warm, dry summers. Overall, the regional climate has the typical characteristics of a mixed-elevation Mediterranean climate.

The project site is in the eastern Central Valley and can experience high summer temperatures, mostly unmitigated by the “delta breezes” present farther south and west in California’s Central Valley. The National Weather Service monitoring station at Marysville (Number 045385) provides a climate history representative of the project site. Based on data from 1981 through 2010 (Western Regional Climate Center 2021), July air temperatures at Marysville average a high of 97°F, and a low of 63.7°F. Average January high and low temperatures are 55.4 and 39.3°F, respectively. Annual average precipitation is 22.04 inches, and falls exclusively as rain, with 68 percent falling during the winter months from December through March. June through August precipitation averages only 0.14 inch.

Hydrology

Table 3.11-1 summarizes streamflow data for the Yuba, Feather, and Bear rivers.

Table 3.11-1. Summary Streamflow Data for the Yuba, Feather, and Bear Rivers, 1902-2020

United States Geological Survey Gage		Annual Flow (cfs)				Mean Monthly Flow (cfs)		Daily Flow (cfs)		Instantaneous Flow (cfs)	
Number	Name	Mean	Median	Highest (Year)	Lowest (Year)	Highest (Period)	Lowest (Period)	Highest (Date)	Lowest (Date)	Highest	Lowest
YUBA RIVER											
11413517	N Yuba R Low Flow Rel BI New Bullards Bar Dam	7	6	7 (periodic)	6 (periodic)	6 (periodic)	8 (periodic)	10 (March 17, 2004)	5 (March 19, 2011)	NA	NA
11418000	Yuba River Below Englebright Dam, Near Smartsville	2,449	1,653	5,251 (1982)	414 (1977)	22,351 (January)	41 (November)	134,000 (January 2, 1997)	0 (periodic)	171,000 (December 22, 1964)	NA
11421000	Yuba River Near Marysville	2,419	1,490	5,818 (1982)	229 (1977)	26,180 (January)	31 (July)	140,000 (2 Jan 1997)	15 (periodic)	180,000 (December 24, 1964)	NA
FEATHER RIVER											
11407000	Feather River at Oroville	3,332	NA	12,860 (1907)	403 (1976)	7,450 (1911)	1,266 (1967)	187,000 (March 19, 1907)	222 (September 19, 1972)	230,000 (1907)	NA
BEAR RIVER											
1142000	Bear River at Wheatland	137	NA	1,312 (2017)	0 (1977)	1,180 (March)	0 (October)	35,900 (February 17, 1986)	0 (October 14, 1976)	48,000	0

Notes: cfs = cubic feet per second; NA = not available
 Source: U.S. Geologic Survey 2021

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Reservoir operations are interrelated among the major rivers of the Sacramento Valley. Surface water flows on the Yuba and Feather rivers are controlled almost exclusively by operations at New Bullards Bar Dam (Yuba River) and Oroville Dam (Feather River), where USACE operational rules govern spillway releases per respective water control manual specifications (USACE 1959, 1972).

The amount of storage held in a reservoir at any point in time (conservation storage) is governed by the USACE criteria stated in the flood control project's water control manual. Top of conservation storage can vary depending on time of year, upstream storage, and the type of storm event (rain or snow) that is occurring. The space between the top of conservation storage and the capacity of the reservoir is the required flood control space. In addition to flood control releases dictated by each reservoir's flood control manual, the reservoir behind each dam also makes releases from storage to supplement flows ensuring adequate water supply is available to meet downstream needs and objectives, while maintaining minimum instream flows required by regulatory agencies.

Yuba River

New Bullards Bar Reservoir is the primary influence on Yuba River flows upstream of the project site. The reservoir must be operated from September 16 to May 31 to comply with Part 208 "Flood Control Regulations, New Bullards Bar Dam and Reservoir, North Yuba River, California," pursuant to Section 7 of the Flood Control Act of 1944 (58 Stat. 890). Under the contract, YWA agreed to reserve 170,000 ac-ft of storage space for flood management in New Bullards Bar Reservoir in accordance with rules and regulations enumerated in the Hydrology Report on Reservoir Regulation for Flood Control (USACE 1972). The flood management regulations include rules that target maximum flows in the Yuba River downstream of New Bullards Bar Reservoir, and the Feather River below the confluence with the Yuba River.

Other restrictions on the Yuba River upstream of the project site include the USACE's Englebright Dam constructed in 1941 to trap sediment from anticipated hydraulic mining operations in the Yuba River watershed. The dam forms USACE's Englebright Reservoir, which is about 9 miles long and has a gross storage capacity of about 70,000 ac-ft. Similar to USACE's Englebright Dam, USACE's Daguerre Point Dam was constructed by the California Debris Commission to prevent hydraulic mining debris from the Yuba River watershed from flowing into the Feather and Sacramento rivers.

Feather River

Oroville Dam is the cornerstone of DWR's State Water Project and regulates Feather River flows downstream for a multitude of uses, including water supply and flood control. The river is almost entirely contained within a series of levees as it flows through the fertile agricultural lands of the Sacramento Valley.

Oroville Dam and Reservoir must operate in accordance with rules and regulations enumerated in the Reservoir Regulation for Flood Control (USACE 1972). The reservoir operations are

dictated by a combination of volume of encroachment and forecasted inflows. Under wet conditions (October 15 – April 1), 750,000 ac-ft is allocated for flood management. From April 1 through June 15, the reservoir is allowed to refill, and by June 15, the allocation for flood management is reduced to 0 ac-ft to account for the limited chance of rainfall during summer. The maximum reservoir release from the flood control outlet is 150,000 cubic feet per second (cfs), without using the emergency spillway. Reservoir operation rules for flood management were also developed by USACE considering seasonal variation of inflow, resulting in varying seasonal flood management storage requirements (less flood control storage in summer and increased flood control storage in winter).

Surface water flows in the Lower Feather River can also be influenced by Sutter Bypass operations, which bring Sacramento River water through Butte Slough and into the Lower Feather River. This system is designed, in part, to relieve flood flows in the Sacramento River.

Bear River

Bear River flows are regulated by upstream storage reservoirs and diversions including Lake Combie, Rollins Reservoir, and Camp Far West Reservoir. Unrestricted flow patterns are typical of foothill streams with high winter and spring flows and very low summer and fall flows. In highest rainfall years, winter flows average 3,400 to 5,600 cfs; maximum recorded discharge is 48,000 cfs. In normal years, winter flows are 600 to 800 cfs. In the driest years, flows average only 20 to 65 cfs in winter, down to 0 cfs in other months.

Groundwater

The project area is located in the southern portion of the Sacramento River hydrologic region, within the South Yuba Subbasin (DWR 2006). The principal aquifers in the valley area consist of as much as 100 feet of Pleistocene sands and gravels overlain by up to 125 feet of recent alluvial fan, floodplain, and stream channel deposits. The pre-Eocene formations in this area have relatively low permeability and are moderate water producers. Natural groundwater levels can vary substantially from year to year and seasonally. Groundwater levels are generally higher in winter and spring. The valley areas along the Yuba and Feather rivers generally serve as groundwater recharge areas. Groundwater levels in the South Yuba Subbasin range from about 25 feet above mean sea level (msl) along portions of SR 70 to 140 feet above msl at the edge of the subbasin near the Yuba River and the project area. Near the center of the subbasin, groundwater occurs at about 45 feet above msl (YCWA 2008).

The South Yuba Subbasin is subject to the Sustainable Groundwater Management Act (SGMA) and is one of the basins identified by DWR as being high-priority (DWR 2020). Consistent with the requirements of SGMA, a Groundwater Sustainability Plan (GSP) was prepared and adopted by three Groundwater Sustainability Agencies: YWA, Cordua Irrigation District, and the City of Marysville. The GSP outlines a program to reach sustainability within 20 years (YWA 2019).

Water Quality

The project site is in the Sacramento Hydrologic Basin Planning Area, the Bear River Hydrologic Unit (515.1), and the Yuba River Hydrologic Unit (515.3) as designated by the CVRWQCB. In accordance with CWA Section 303, water quality standards for this basin are contained in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin. (CVRWQCB 2018.)

Beneficial Uses

The Yuba, Feather, and Bear rivers are included in the beneficial use designations of the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan) for uses such as agricultural irrigation, power generation, various recreation categories, spawning habitat, and wildlife habitat.

Surface Water Quality

SWRCB is required under CWA Section 303(d) to prepare a list of water bodies (also known as the 303[d] list) that do not meet applicable water quality standards and to develop a priority ranking for development of total maximum daily loads (TMDLs) for each water body. Section 303(d) requires that the State develop a TMDL for each listed pollutant. The TMDL is the amount of loading that the water body can receive and still comply with water quality objectives. The NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, the problems that led to placement of a given pollutant on the Section 303(d) list are anticipated to be remediated.

Mercury and Methylmercury

Both the Feather and North Yuba rivers are 303(d)-listed for mercury. Mercury in the project vicinity is a legacy of the region's hydraulic gold mining and remains sequestered in sediments within the floodplains. Mercury can affect the nervous system of higher trophic organisms and is bioaccumulated and transferred from lower to higher trophic organisms through the food-web. Methylmercury is an organic form of mercury that is highly toxic and is the main culprit in mercury poisoning. The conversion of mercury to methylmercury (and vice versa) is a complex process dependent on environmental variables including sunlight, temperature, moisture, and availability of other elements, including organic carbon. (CVRWQCB 2018.)

Pesticides

The Lower Feather River is listed on the CWA Section 303(d) list of impaired water bodies for temperature, chlorpyrifos, diazinon, mercury, and unknown toxicity. Constituents of concern for groundwater are total dissolved solids, nitrate, and several other individual chemical constituents. (CVRWQCB 2018.)

Groundwater

Regional groundwater quality in the Yuba Subbasins is considered good to excellent for municipal, domestic, and agricultural uses and does not have a significant adverse impact on the beneficial uses of groundwater in the subbasins. There is naturally occurring arsenic, iron, and manganese in some areas that may have concentrations that exceed the associated drinking water thresholds, although such occurrences are limited. Instances with elevated concentrations may be addressed through treatment, blending, use of supplies at different depths or locations, or through non-potable uses not sensitive to the constituent. (CVRWQCB 2018.)

3.11.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

Reclamation District Act

In 1861, the first RDs were formed as a result of the Reclamation District Act. The RDs and levee districts were responsible for maintenance and repair of levees and other flood control facilities within their boundaries. These early pieces of legislation helped propel agricultural growth in the Central Valley's fertile floodplains and led to construction of many of the region's early levees in an effort to maximize agricultural development (DWR 2010).

Sacramento River Flood Control Project

In 1917, the Federal government authorized the Sacramento River Flood Control Project consisting of a system of levees and bypasses through the Sacramento River basin. The original intent of the project was to assure conveyance of floodwaters to support navigation and agriculture, and keep the rivers and bypasses clear of hydraulic mining debris and sediment. The Sacramento River Flood Control Project includes the Yuba, Feather, Bear, Sacramento, and other major tributaries of the Sacramento River.

Federal Emergency Management Agency Levee Requirements

For the Federal Emergency Management Agency (FEMA) to accredit a levee as providing a 100-year level of flood risk reduction (1.0% chance of occurring in any given year, or 0.01 annual exceedance probability [AEP]), the levee must be shown to satisfy several criteria, including protection of the embankment against erosion. Specific requirements are contained in 44 CFR 65.10.

Federal Emergency Management Agency Flood Zone Designations

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map or Flood Hazard Boundary Map. Each zone reflects the severity or type of flooding in the area. The RD 784 levee system meets and exceeds the requirements of 44 CFR 65.10, which is the FEMA 100-year standard (FEMA 2010).

State Plans, Policies, Regulations, and Laws

Clean Water Act Section 303

EPA has published water quality regulations under CFR Title 40 that require states to adopt water quality standards for all surface waters of the United States as authorized by Section 303 of the CWA; hence, CWA Section 303 is included in this subsection addressing State regulations. Water quality standards consist of three major elements:

- Designated beneficial uses of the water body in question
- Criteria that protect the designated uses
- The antidegradation policy, which is designed to prevent deterioration of existing levels of good water quality (*see* “State Nondegradation Policy” below for more information)

Designated beneficial uses are uses that society determines, through the Federal and State governments, that the water body should attain. Examples include supporting communities of aquatic life, supplying water for drinking or industrial processes, irrigating crops and landscaping, and providing recreational uses (e.g., fishing, swimming, boating). Where multiple uses exist, water quality standards must protect the most sensitive use.

Section 303(d) Impaired Waters List

Section 303(d) of the CWA requires each state to develop a list of water bodies that would not attain water quality objectives after point-source dischargers (municipalities and industries) implement required levels of treatment. Section 303(d) also requires states to develop a TMDL for each listed pollutant. The TMDL can also act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by each state must:

- Allocate allowable loadings to point and nonpoint sources
- Consider background loadings and a margin of safety
- Include an analysis showing links between loading reductions and the attainment of water quality objectives
- Account for seasonal variation in water quality in its calculations (EPA 2013)

EPA must either approve a TMDL prepared by a state or, if it disapproves the state’s TMDL, issue its own. NPDES permit limits for listed pollutants that must be consistent with the waste load allocation prescribed in the TMDL. The intent is that the problems that caused a given pollutant to be placed on the Section 303(d) list would be remediated once the TMDL is implemented.

The Lower Yuba River from Englebright Reservoir to the Feather River has been identified as CWA 303(d) State Impaired for mercury. However, a TMDL has not been established.

Clean Water Act Section 401

Through 40 CFR 304(a), EPA is required to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. EPA has delegated responsibility for identifying beneficial uses, adopting applicable water quality objectives, and issuing NPDES permits in California to SWRCB and the nine RWQCBs.

Under CWA Section 401(a)(1), applicants for a Federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate. Alternatively, if appropriate, applicants must obtain certification from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects with a Federal component that may affect state water quality (including projects requiring a Federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. The Section 401 water quality certification certifies that the proposed activity will not violate state water quality standards. The RWQCBs administer the Section 401 program to prescribe measures necessary to avoid, minimize, or mitigate adverse impacts of proposed projects on water quality.

Porter-Cologne Water Quality Control Act and Clean Water Act Section 402

SWRCB and the RWQCBs regulate pollutant discharges into waters of the United States by issuing NPDES permits, authorized under Section 402 of the CWA. They regulate pollutant discharges into waters of the state by issuing waste discharge requirements (WDRs), authorized under California's Porter-Cologne Act. The Porter-Cologne Act defines waters of the state as "any surface water or ground water, including saline waters, within the boundaries of the state."

SWRCB and the RWQCBs issue NPDES permits and WDRs to ensure that projects that may discharge pollutants to land or water conform to water quality objectives and policies and procedures of the applicable water quality control plans. NPDES discharge permits generally cover industrial and construction activities. Obtaining and complying with NPDES permits involves filing a notice of intent to discharge with SWRCB or the CVRWQCB and implementing BMPs to minimize pollutants associated with those discharges. The Central Valley RWQCB may also issue site-specific WDRs, or waivers to WDRs, for certain discharges to land or waters of the state.

The SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Order 2009-009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ, applies to land-disturbing construction activities that would affect 1 acre or more and discharge stormwater to waters of the United States.

The Construction General Permit applies to land disturbance and associated activities such as clearing, grading, stockpiling, and excavation. Dischargers are required to minimize pollutants in stormwater and non-stormwater discharges to surface waters. The permit also requires dischargers to implement permanent, postconstruction BMPs to reduce impacts on the quality and quantity of stormwater discharges throughout the life of the project. Types of BMPs include source controls, treatment controls, and site planning measures.

National Pollutant Discharge Elimination System

The objective of the NPDES program is to control and reduce discharges of pollutants to water bodies in surface-water discharges. Under Section 402 of the CWA, SWRCB and the RWQCBs have been delegated authority by EPA to implement and enforce the NPDES program within California. SWRCB adopted Construction General Permit Order 2009-009-DWQ on September 2, 2009, and it became effective on July 1, 2010. Order 2009-009-DWQ was subsequently amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ. The 2009 order superseded Order 99-08-DWQ. Important changes in the new order include:

- Establishment of three project risk levels based on erosion potential of the project site and sensitivity of receiving waters
- Requirements for linear underground/overhead projects, in addition to traditional construction projects
- Monitoring and reporting requirements based on project type and risk level, which may include analyzing samples of discharges and receiving waters
- Certification and training requirements for personnel preparing and implementing SWPPPs
- Postconstruction performance standards for the quality, quantity, and intensity of stormwater discharges
- Option for obtaining a rainfall erosivity waiver for projects that meet specific requirements
- Technology-based numeric action levels
- Specified minimum requirements for BMPs
- Site-specific soil characterization for determination of project risk levels
- Requirement for rain event action plans for risk level 2 and 3 projects
- Increased annual reporting and compliance certification requirements
- Documentation of final site stabilization based on percentage of stabilized area and analysis using the Revised Universal Soil Loss Equation (i.e., RUSLE) model, or custom methods

These changes seek to ensure that the construction and postconstruction conditions at a project site do not cause or contribute to direct or indirect impacts on water quality (i.e., pollution and/or hydromodification) upstream and downstream. To comply with the requirements of the Construction General Permit, developers must file a notice of intent with SWRCB to obtain coverage under the permit; prepare a SWPPP; and implement inspection, monitoring, and

reporting requirements appropriate to the project's risk level as specified in the SWPPP. The SWPPP includes a site map, describes construction activities and potential pollutants, and identifies BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources, such as petroleum products, solvents, paints, and cement.

Water Quality Control Plan

The Basin Plan must be updated every 3 years by CVRWQCB to comply with the Porter-Cologne Act. The Basin Plan describes the officially designated beneficial uses for specific surface water and groundwater resources and the enforceable water quality objectives necessary to protect those beneficial uses. The Basin Plan includes numerical and narrative water quality objectives for physical and chemical water quality constituents. Numerical objectives are set for temperature; dissolved oxygen; turbidity; pH (i.e., acidity); total dissolved solids; electrical conductivity; bacterial content; and various specific ions, trace metals, and synthetic organic compounds. Narrative objectives are set for parameters such as suspended solids, biostimulatory substances (e.g., nitrogen and phosphorus), oils and grease, color, taste, and aquatic toxicity.

The California Toxics Rule is a separate regulatory instrument that prescribes criteria for trace metals and organic compounds for the protection of aquatic life and human health. Federal and state drinking-water-quality standards regulate the quality of treated municipal drinking-water supplies delivered to users.

State Nondegradation Policy

In 1968, as required under the Federal antidegradation policy, SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into State waters must be regulated to achieve the highest water quality consistent with maximum benefit to the people of the State and to promote the peace, health, safety, and welfare of the people of the State. The policy provides as follows:

Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the State and would not unreasonably affect present and anticipated beneficial uses of such water.

Any activity that produces waste or increases the volume or concentration of waste and that discharges to existing high-quality waters must meet WDRs in an effort to ensure that (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the State would be maintained.

Regional and Local Plans, Policies, Regulations, and Ordinances

Central Valley Flood Protection Plan

The 2012 Central Valley Flood Protection Plan (CVFPP) was adopted by the Central Valley Flood Protection Board (CVFPB) on June 29, 2012, pursuant to Section 9612 of the California Water Code. The CVFPP is intended to guide sustainable, integrated flood management in areas currently protected by facilities of the State Plan of Flood Control. The CVFPP, which is updated every 5 years, includes broad management actions to improve the flood management system, policies, and institutions at a system-wide level and integrates environmental conservation strategies and actions to improve the flood management system's long-term sustainability while improving ecosystem function. At the same time, it provides additional options for addressing compliance with environmental regulations related to long-term O&M. The 2022 CVFPP update will evaluate progress made since passing major State bonds in 2007 and will recommend future management actions led by State, local, and/or Federal agencies to continue implementation of the CVFPP. One of the three major themes of this update will be climate resilience, a key objective of the proposed project.

The CVFPP prohibits any city or county in the Central Valley from entering into a development agreement or approving any permit, entitlement, or subdivision map until flood-related requirements are met. Flood management facilities must provide an urban level of flood risk reduction (protection against the 200-year flood event) for urban or urbanizing areas (populations greater than 10,000) or meet the FEMA standard for non-urbanized areas. Alternatively, adequate progress toward constructing such a flood risk reduction system by 2025 must be demonstrated. The 200-year level of protection is based on the Urban Levee Design Criteria (DWR 2012). The existing RD 784 urban levee system meets these standards.

Yuba County Ordinance Code

Floodplain Regulations

Yuba County has adopted floodplain management regulations as described in Section 10.30 of the Yuba County Ordinance Code to protect public health and safety. Section 10.30 serves to minimize public and private losses caused by flood conditions in specific areas through uniform application of legally enforceable regulations throughout the community. Relevant methods of reducing flood losses required by the ordinance are to:

- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters
- Control filling, grading, and dredging
- Prevent or regulate the construction of flood barriers that will unnaturally divert floodwaters or that may increase flood hazards in other areas

Grading, Drainage, and Erosion Control

Yuba County has adopted regulations as described in Section 11.23 of the Yuba County Ordinance Code for grading, drainage, and erosion control. The Code states:

No person shall do or permit to be done any grading in such a manner that quantities of dirt, soil, rock, debris or other material substantially in excess of natural levels are washed, eroded or otherwise moved from the site, except as specifically provided for by a permit. In no event shall grading activities cause or contribute to the violation of provisions of any applicable NPDES stormwater discharge permit.

The purpose of the code is to establish authority and procedures for issuing grading permits, approving grading plans, inspecting earthwork activities, and enforcing erosion and sediment control measures to protect water quality and to reduce the discharge of pollutants into county stormwater drainage systems.

Yuba County Department of Public Works Improvement Standards

The Yuba County Department of Public Works Improvement Standards were published in 1994 to provide the public with regulation and design guidelines for maintenance and operation within existing public or private rights-of-way. These improvement standards stipulate that grading plans must be designed to allow stormwaters to flow through developments in a manner that will not flood structures and must include measures that minimize erosion. Any grading and excavation that occurs as part of the proposed project would be subject to these regulations along with the Yuba County Ordinance Code.

Yuba County Office of Emergency Services

The Yuba County Office of Emergency Services is the local agency responsible for enforcing requirements related to hazardous materials, waste, safety, noise, and other related concerns. It is the mission of the Office of Emergency Services to coordinate disaster activities before, during, and after catastrophic emergencies affecting the citizens of Yuba County. The Office of Emergency Services provides planning, training, and coordination to Yuba County departments and allied agencies throughout the county.

Yuba County General Plan

The following policy from the Yuba County 2030 General Plan Public Health and Safety Element is relevant to the proposed project (Yuba County 2011).

Policy HS1.3: The County may allow non-residential improvements within the 100-year floodplain so long as the proposed improvements do not:

- Increase flood heights or velocities
- Inhibit emergency access
- Create excessive costs in providing governmental services during or after flooding

- Interfere with the existing waterflow capacity of the floodway
- Substantially increase erosion and/or sedimentation; or
- Contribute to deterioration of any watercourse or the quality of water in any body of water

3.11.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. Implementing the project would result in a significant impact related to hydrology and water quality if it would result in any of the following:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in any of the following:
 - Result in substantial erosion or siltation on- or offsite
 - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite
 - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
 - Impede or redirect flood flows
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation
- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

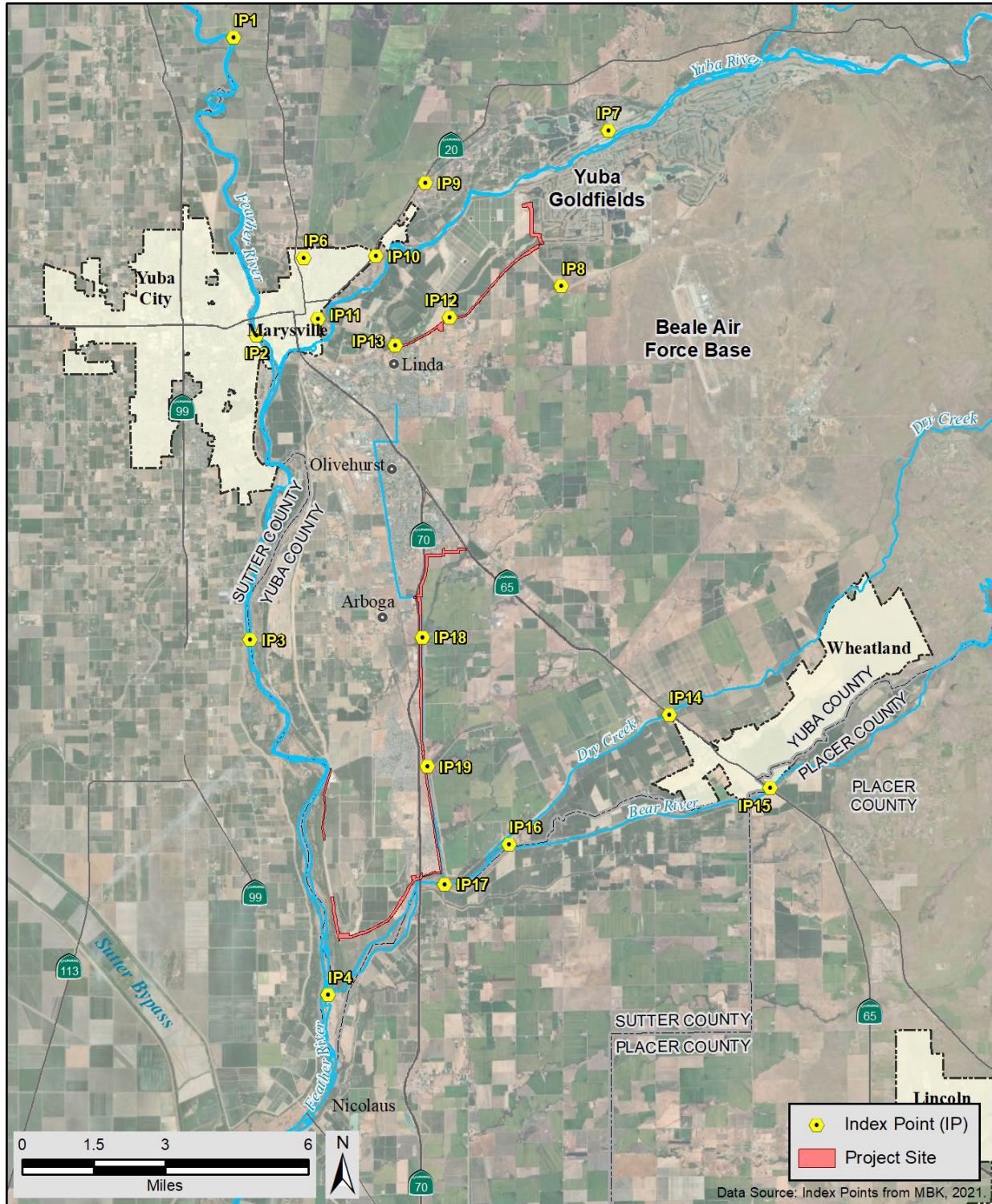
Analysis Methodology

The impact analysis evaluates how proposed changes to the existing RD 784 urban levee system would alter flows in, adjacent to, and upstream and downstream of the project site. Analysis of potential flooding increase is based on comparing water surface elevations for existing and future conditions under specified AEP (1/50, 1/100, 1/200, and 1/500 AEP flood events). The hydraulic analysis was conducted using the USACE Institute for Water Resources Hydraulic Engineering Center River Analysis System (HEC-RAS) software program. The HEC-RAS model is a commonly used tool to evaluate river hydraulics for a full network of natural and constructed channels, overbank/floodplain areas, and levee protected areas subject to flooding.

To determine how the proposed 500-year improvements would alter flows, HEC-RAS was used to conduct an encroachment analysis. The analysis considers the natural profile of the project rivers and surrounding topography, junctions with other rivers, presence of obstructions (bridges, dams, and levees), pump stations, storage areas, and other features that influence river hydraulics to estimate flow carrying capacity. **Figure 3.11-1** depicts index points in the project area that were used to examine predicted outcomes at specific locations in the river systems. As shown, 17 key locations along the Yuba, Feather, and Bear rivers were evaluated in the model. Using this model of the river systems, water surface elevations were predicted for the selected AEP flood events and locations identified under several scenarios, including pre-project, with implementation of the proposed project, with implementation of each project alternative evaluated in Section 6.2, “Alternatives Evaluated Further,” and cumulative conditions evaluated in Chapter 5, “Cumulative Impacts.” The pre-project condition represents existing conditions when the NOP was issued, with the addition of one imminent future project also described in Chapter 5 The RD 817 Bear River Setback Levee Project was included in the pre-project condition because it was anticipated to be constructed in 2021; construction was delayed slightly but is expected to be completed in 2022. The model also predicts the location where surface water would overtop the channel bank and when the flows generated sufficient force to cause levee failure. The hydraulic modeling methods are described in more in detail in **Appendix E, “Hydraulic Impact Analysis Technical Memorandum.”**

Comments related to hydraulic impacts of the proposed project were received in response to the NOP from CVFPB, several local agencies, and local landowners. These commentors highlighted potential issues and concerns and in some cases recommended specific analyses. The hydraulic impact analysis was conducted in consideration of these comments, including a specific analysis to address landowner claims that previous TRLIA projects have worsened conditions for landowners east of the WPIC. Because previous TRLIA project are part of the existing conditions, their potential impacts are discussed in Chapter 5, “Cumulative Impacts.” TRLIA consulted with CVFPB before and after completing the hydraulic impact analysis. CVFPB staff reviewed the admin draft hydraulic impact analysis and provided comments; this analysis addresses CVFPB comments.

Figure 3.11-1. Index Points for HEC-RAS River System Modeling



Z:\Projects\050115_TRLIA\050115_500Year\050115_500Year_G029_IndexPoints.mxd
2021Dec23 RS

Source: MBK Engineers 2021, adapted by GEI in 2021

Issues Not Discussed Further

Tsunami or Seiche. The project site is not in a coastal area and is outside the tsunami hazard zone. Additionally, there are no water bodies on or near the project site large enough to be subjected to a seiche, as a result of an earthquake. Therefore, there would be no impact related to tsunami or seiche, and this issue is not discussed further.

Water Diversions and Water Rights. Project construction and operation would not affect the ability for downstream diverters to meet water supply needs because the overall quantity or seasonal availability of water in the system would not be affected. The project involves levee improvements, which do not affect the amount of water flowing into or out of the project area, with the exception of minimizing flood risks during high-flow events that, if a flood did occur, would spill some flood flows onto the adjacent floodplain. This would have no effect on downstream water diversions or water rights. Therefore, no impact would occur from the project and this issue is not discussed further.

Water Supply Availability. Project construction and operations would not reduce the amount of total water available in the Yuba, Feather, or Bear rivers, and there would be no effect to the availability of water or its beneficial uses in these rivers or downstream into the Sacramento–San Joaquin Delta. Therefore, no impact would occur from the project and this issue is not discussed further.

Groundwater Supply, Recharge, and Sustainable Management. The project would not use groundwater supplies during construction or operation, nor would it interfere with groundwater recharge or conflict with a GSP. The project would have no effect on groundwater supply, recharge, or sustainable management of groundwater and this issue is not discussed further.

Impact Analysis and Mitigation Measures

Table 3.11-2 indicates the change in maximum water surface elevations that would result from implementing the proposed project for each modeled AEP. Two potential levee failure scenarios are also considered, depending on whether the levees fail if overtopped (water flows over the top of the levee).

Modeled surface water elevations for the 1/50 AEP flood show that the project improvements would result in an increase of 0.03 feet (less than 0.4 inch) or less in maximum water surface elevations at up to nine index points if levees fail when overtopped and only two locations if the levees do not fail.

Modeled surface water elevations for the 1/100 AEP flood show that project improvements would result in a decrease of up to 0.03 feet in maximum water surface elevation at six index points, primarily under the scenario in which the levees do not fail if overtopped. Conversely, water surface elevation would increase by up to 0.03 feet or less at up to seven index points, primarily under the scenario in which the levees do not fail if overtopped.

Table 3.11-2. Difference in Maximum Water Surface Elevations under Existing (Pre-project Conditions), Compared to with Project Implementation

Index Point	Location	Change in Maximum Water Surface Elevations with Proposed Project (feet, NAVD 88)							
		Levees Fail if Overtopped				Levees Overtop without Failing			
		1/50 AEP	1/100 AEP	1/200 AEP	1/500 AEP	1/50 AEP	1/100 AEP	1/200 AEP	1/500 AEP
1	Feather River at River Mile 117.055	0	0	0	0	0	0	+0.01	0
2	Feather River at Yuba City (Bridge Street)	0	0	+0.01	0	0	-0.03	+0.01	0
3	Feather River at Boyd's Landing	0	0	+0.01	0	0	-0.02	+0.02	0
4	Feather River below Bear River	0	0	0	0	0	-0.01	+0.01	0
5	Feather River at Sutter Bypass	0	0	0	-0.01	0	-0.01	0	0
6	Jack Slough at Union Pacific Railroad	0	-0.01	0	0	0	-0.03	+0.02	0
7	Yuba River at North Training Wall	0	0	+0.01	+0.01	0	0	+0.01	0
8	Goldfields 200-year Levee	dry	dry	dry	+0.03	dry	dry	dry	+0.04
9	Yuba River North Levee at Walnut Avenue	dry	+0.03	+0.08	+0.20	dry	+0.03	+0.08	+0.15
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	+0.06	dry	dry	dry	+0.05
11	Yuba River North Levee at Simpson Lane	+0.01	0	0	+0.01	0	0	0	0
12	Yuba River South Levee at Dantoni Road	dry	-0.78	-1.35	-0.15	dry	-0.78	-1.35	-0.20
13	Yuba River South Levee at Simpson Lane	0	-0.01	-0.03	-0.03	0	-0.01	-0.04	-0.02
14	Dry Creek at State Route 65	0	0	0	0	0	0	0	0
15	Bear River at State Route 65	0	0	0	0	0	0	0	0
16	Bear River at Dry Creek	0	+0.01	0	+0.01	0	0	0	0
17	Bear River at WPIC	0	0	+0.01	0	0	0	+0.03	+0.01
18	WPIC at Reeds Creek	+0.03	+0.03	+0.03	+0.02	+0.03	+0.03	+0.03	+0.02
19	WPIC at Best Slough	+0.02	+0.02	+0.03	+0.01	+0.01	+0.01	+0.04	+0.02

Notes: AEP = annual exceedance probability, Alt = Alternative, dry = flows would not reach this location under the given AEP; NAVD 88 = 1988 North American Vertical Datum, WPIC = Western Pacific Interceptor Canal; red text indicates an increase in water surface elevation; blue text indicates a decrease in water surface elevation

Source: MBK Engineers 2021

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Modeled surface water elevations for the 1/200 AEP flood show that the project improvements would result in an increase of up to 0.02 feet (less than 0.25 inch) in maximum water surface elevation at eight index points under each levee failure scenario. One index point (9, Yuba River North Levee at Walnut Avenue) would experience an increase of 0.08 foot, but this still represents less than 0.1 percent of the total stage at this location. Water surface elevations would decrease at three locations under each levee failure scenario, including a substantial decrease of 1.35 feet at one index point (12, Yuba River South Levee at Dantoni Road). This is an intended effect of the proposed Goldfield West Levee, which would divert floodwaters that would have overtopped the existing mining tailing embankment towards the Yuba River left floodplain rather than flowing against the Yuba River South Levee.

Modeled water surface elevations for the 1/500 AEP flood show that the project improvements would result in an increase of up to 0.06 feet (less than 0.75 inch) in maximum water surface elevation at up to five index points, depending on the levee failure scenario. As with the 1/200 AEP flood, one index point (9, Yuba River North Levee at Walnut Avenue) would experience a greater increase of up to 0.20 foot (2.4 inches) under the 1/500 AEP chance flood. The increase is due to the proposed Goldfields West Levee, which would divert water toward the main channel of the Yuba River and raise maximum water surface elevation at index point 9. Water surface elevations would decrease at up to five locations, depending on the levee failure scenario, with the greatest decrease being 0.2 feet at the Yuba River South Levee at Dantoni Road.

Impact 3.11-1: Impacts on Drainage Patterns, Stormwater Facilities, and Flood Flows.

The proposed project includes raising segments of existing RD 784 urban levee embankments and constructing two new embankments to a high enough elevation to protect against a 1/500 AEP flood event, thereby reducing potential for impacts on drainage patterns, stormwater facilities, and flood flows in the protected area. Seepage remediation elements would improve capability of the levees to withstand the hydraulic forces of a 500-year event. Implementing these improvements would effectively increase the capacity of stormwater drainage systems waterside of the levees and prevent landside stormwater drainage systems from exceeding their capacity.

Project implementation would not alter drainage patterns or flood flows in a manner that would redirect impacts to areas outside the RD 784 urban levee system, including adjacent to the project site and upstream and downstream of the site. The project area levees may or may not fail if they are overtopped during an extreme flood event. Hydraulic analyses indicate that under either of these scenarios, the proposed would result in minor changes in maximum water surface elevations at most modeled locations.

Overall, the proposed project would result in very minor increases in maximum water surface elevation under specific conditions and at specific locations. These extremely small stage increases would have a very minor impact in the affected areas. As shown in **Table 3.11-2**, stage increases resulting from project implementation would be 0.06 foot (less than 0.75 inch) or less

at all but one of the 15 relevant index points. This level of change would be insubstantial. The Yuba River North Levee at Walnut Avenue (Index Point 9) would experience a stage increase of 0.08 foot (less than 1 inch) to 0.20 foot (2.4 inches) under the 200- and 500-year AEPs, respectively. Although these increases would be greater than at other index points, they would not result in a substantive change to drainage patterns or flood flows. In addition, as discussed in more detail in Chapter 5, “Cumulative Impacts,” TRLIA is separately implementing the North Training Wall Project to reduce the flood risk to the community of Hallwood, in the vicinity of Index Point 9. Moreover, under future conditions with coordinated operations of Oroville Dam and New Bullards Bar Dam ARC spillway, the Yuba River North Levee at Walnut Avenue (Index Point 9) would experience a substantial decrease in maximum water surface elevation.

Hydraulic modeling results show the project would lower maximum water surface elevations by small amounts at up to eight index points under all but the most frequent, 1/50 AEP flood event. One index point on the Yuba River South Levee at Dantoni Road would experience a substantial stage decrease of 1.35 feet during a 200-year event and up to 0.2 foot during the 500-year flood event, as a result of constructing the Goldfield West Levee. Not reflected in the HEC-RAS results are the seepage remediation benefits that further improve flood risk reduction by strengthening the relevant levee segments.

By implementing the proposed project, TRLIA would upgrade the RD 784 urban levee system and thereby reduce flood risk in areas protected by the system. Without the proposed project, levees could overtop and fail in flood events greater than the current protection levels. Such flooding may lead to catastrophic loss of life and property, as has occurred in this region during previous levee failures. Hydraulic modeling results demonstrate that increasing the level of flood protection provided by the RD 784 urban levees would not worsen risk to areas not protected by this levee system and would not expose people or structures to a significant risk of loss, injury, or death involving flooding. For these reasons, net impacts on drainage patterns, stormwater facilities, and flood flows that would result from implementing the proposed project are considered to be **beneficial**.

Mitigation Measure: No mitigation is required.

Impact 3.11-2 Alter drainage pattern in a manner that results in substantial erosion or siltation on- or offsite.

Project-related improvements would not increase the volume or intensity of stormwater runoff in a manner that would result in on- or off-site erosion or siltation. Changes in water surface elevations illustrate the improvements have nominal effect on surface water elevation under the 1/50, 1/100, 1/200 and 1/500 AEP flood events except on the Feather River Index Point 12, where a substantial decline in water surface elevation would occur. Project-related construction would elevate embankment segments high enough to protect against the 1/500 AEP flood event and improve the stability of levees by protecting from water seepage. These improvements would be capable of handling the hydraulic loading of the 500-year interval event.

O&M activities expected after the project is constructed include inspections of the embankments, weed abatement, and maintenance of the patrol roads located at the top of the embankments. Patrol road maintenance would include minimal grading and placement of additional aggregate to maintain the integrity of the road surface. Grading and aggregate placement would involve minimal ground disturbance and would not result in substantial on- or off-site erosion or siltation. O&M activities associated with the proposed project would be essentially the same as O&M activities occurring now under existing conditions. Given the levee improvements, it would be expected that less maintenance activities would be needed at the levee improvement sites.

Therefore, the drainage pattern would not be altered in a manner that results in substantial erosion or siltation on- or offsite, and these impacts would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact 3.11-3: Violate Surface Water Quality Standards from Ground Disturbance and Accidental Discharge of Wastes during Construction.

Construction activities associated with the Goldfields West Levee would include excavation and grading of mine tailings in the Goldfields. Although mercury is routinely detected in the Yuba River near this portion of the project site, concentrations have not exceeded ambient California Toxics Rule criteria. Mercury testing of sediment in the portion of the Goldfields used by Western Aggregates conducted in 2005 showed that mercury is present in amounts below human health and ecological screening levels, and that mercury concentrations in the sediment are within the lower end of the background range and below ecological screening levels and hazardous waste levels (MACTEC 2005).

Project-related construction would include removing existing soil and aggregate along the levee top and embankments, excavating into the levee, stockpiling soil for later use, regrading or compacting fill material and aggregate along the levee surface, and related activities such as using construction equipment and hauling on disturbed soils. Project-related excavation and earthmoving activities would result in exposed soil subject to erosion during storm events. Rainfall of sufficient intensity could dislodge soil particles from the soil surface. Once particles are dislodged and the storm is large enough to generate runoff, substantial localized erosion could transport soils into the waterway. Soil and entrained contaminants that enter receiving waters through stormwater runoff can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, lower dissolved oxygen content, and introduce compounds that may be toxic to aquatic organisms.

The extent of potential impacts on water quality would depend on the following factors:

- Erosion potential of the soil types encountered
- Types of construction practices

- Extent of the disturbed area
- Duration of construction activities
- Timing of construction activities relative to storm events
- Proximity of construction activities to receiving water bodies
- Sensitivity of those receiving water bodies to construction-related contaminants

Project construction also could involve storing and using toxic and other harmful substances required for equipment operation during construction and maintenance on the project site. The presence of these substances could accidentally result in their discharge to waterways, ponds, and other aquatic habitats. Construction activities would involve heavy equipment that uses potentially harmful products such as fuels, lubricants, hydraulic fluids, and coolants, all of which can be toxic to fish and other aquatic organisms. Use of this equipment could be a direct source of contamination if equipment and construction practices are not properly followed. An accidental spill or inadvertent discharge from such equipment could directly affect the water quality of aquatic habitats on or adjacent to the project site and indirectly affect water quality of the WPIC, Feather River, and Bear River (the Yuba River is sufficiently distant from the project site that it would not be affected).

Potential water quality impacts associated with in-water construction, exposure of disturbed areas to storm events, and accidental spill of hazardous materials would be **potentially significant**.

Mitigation Measures: Mitigation Measures 3.8-2 and 3.10-1 would address these potential water quality impacts.

Mitigation Measure 3.8-2: Prepare and Implement a Stormwater Pollution Prevention Plan and Best Management Practices to Reduce Erosion.

Please *refer to* Impact 3.8-2 in Section 3.8, “Geology, Soils, and Paleontological Resources,” for the full text of this mitigation measure.

Mitigation Measure 3.10-1: Implement a Spill Prevention Control and Countermeasures Plan and Other Measures to Reduce the Potential for Environmental Contamination during Construction Activities.

Please *refer to* Impact 3.10-1 in Section 3.10, “Hazards and Hazardous Materials,” for the full text of this mitigation measure.

Significance after Mitigation: Implementing Mitigation Measures 3.8-2 and 3.10-1 would reduce potentially significant construction-related impacts to water quality from exposure of disturbed areas to storm events and accidental spills of hazardous materials, because a SWPPP and BMPs specifically designed to minimize turbidity and control erosion and sedimentation would be implemented and an SPCCP and other measures specifically designed to prevent water contamination would be implemented. With implementation of these measures, the proposed

project would not violate water quality standards or create or contribute stormwater runoff that substantially degrade water quality, and this impact would be **less than significant with mitigation**.

Impact 3.11-4 Violate Surface Water Quality Standards from Discharge of Water Encountered during Construction.

In river and stream systems, surface water and groundwater are functionally inter-dependent, and their interactions are controlled by the degree of hydraulic connection (Winter et al. 1998). In hydraulically connected systems, the groundwater table is in contact with the surface water of a river or stream. The exchange of water between groundwater and surface water is controlled by the relative elevations between the two and the hydraulic conductivity of the streambed materials.

The porous nature of Goldfields mining tailings allows water to infiltrate to the surface on and adjacent to the project site and raises the elevations of the numerous ponds of the Goldfields. FEMA recognizes this infiltration and designates the Goldfields as a Zone A. Constructing the Goldfields West Levee would occur in areas subject to high groundwater and may require pumping and discharge. Construction in other portions of the project site may require temporary diversions. Due to the extent of construction, and the unknown quantity or quality of water encountered during dewatering, it is anticipated that discharge of effluent derived from construction dewatering to adjacent lands or surface waters may be required and this action would be **potentially significant**.

Mitigation Measures: Mitigation Measure 3.11-4 has been identified to address this potential water quality impact.

Mitigation Measure 3.11-4: Obtain Coverage and Comply with Requirements of the General Order for Limited Threat Discharges to Surface Water.

Construction and operations involving dewatering will be subject to CVRWQCB WDR R5-2016-0076-01 requirements for managing wastewater produced during dewatering activities. To obtain coverage under this General Order, which also serves as the NPDES Permit, TRLIA or its construction contractor will submit a complete Notice of Intent, determine the quality of the discharge (using tiers), and assign appropriate controls that will be implemented.

TRLIA will obtain coverage under one or more of the following permit tiers, as applicable:

- Tier 1: Clean or relatively pollutant-free wastewaters that pose little or no threat to water quality
 - Tier 1A: Discharges of less than 0.25 million gallons per day or less than 4 months in duration

- Tier 1B: Discharges greater than or equal to 0.25 million gallons per day and greater than or equal to 4 months in duration
- Tier 2: Discharges that may contain toxic organic constituents, volatile organic compounds, petroleum fuel pollution constituents, pesticides, inorganic constituents, chlorine, and/or other chemical constituents that require treatment prior to discharge

TRLIA will submit a separate Notice of Intent under the General Order for applicable construction and/or operation activities.

Timing: Before construction activities.

Responsibility: TRLIA or its construction contractors.

Significance after Mitigation: Implementing Mitigation Measure 3.11-4 would require coverage under the appropriate General Order and implementation of activities to protect surface water quality by testing samples prior to discharge and assigning treatment controls to ensure that contaminants do not enter surface waters when TRLIA is discharging water encountered in deep excavations. Therefore, these project impacts would be **less than significant with mitigation**.

Residual Significant Impacts

Mitigation measures that would reduce potentially significant impacts related to water quality to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant impacts.

3.12 Land Use and Planning

This section provides an overview of the land use and planning framework in the project area and analyzes the potential project impacts to land use and planning.

3.12.1 Environmental Setting

The project site is located in unincorporated Yuba County. Land use in the project area consists of residential and agricultural uses. The eastern portion of the Yuba River South Levee, Feather River East Levee, and Bear River Setback Levee are located in a rural agricultural area. The western portion of the Yuba River South Levee is located in Linda, the WPIC West Levee Extension is adjacent to Olivehurst, and the Bear River North Levee and southern WPIC West Levee are adjacent to the Plumas Lake Specific Plan residential areas. Additionally, the UPRR Valley Line is located adjacent to the WPIC West Levee, and the Peach Tree Golf and Country Club is located adjacent to the Yuba River South Levee. The project site is located just outside of the Yuba County Valley Growth Boundaries (Yuba County 2021), but portions are immediately adjacent to it.

Regional Land Use

Yuba County 2030 General Plan Land Use Designation and Zoning

The Yuba County 2030 General Plan designates the project site as Natural Resources (Yuba County 2011a). A variety of allowable uses are identified for lands designated as Natural Resources: mining; agriculture; natural open space and nature preserves; public facilities and infrastructure, including levees, levee borrow areas, and related facilities; and mitigation banks, parks and recreational uses, and other natural resource-oriented uses.

The project site is zoned as Exclusive Agricultural District 80 Acres and Exclusive Agricultural District 40 Acres, but portions are immediately adjacent to Single Family Residential and Specific Plan Districts. Additionally, small portions of the Goldfields West Levee are zoned as Extractive District Yuba County Ordinance No.1545 (Yuba County 2021). The purpose of the Agricultural District is to support, protect, and maintain a viable, long-term agricultural sector in Yuba County. The purpose of the Extractive District is to establish appropriate locations for the extraction, processing, and distribution of minerals occurring naturally under certain permitted conditions blending these natural minerals with imported minerals; provide for public awareness of the potential for surface mining to occur and reduce potential impacts from non-compatible uses; and to provide a mechanism to allow for support services and uses that are necessary and/or complimentary to the long-term sustainability of mining operations (Yuba County 2015).

3.12.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to land use and planning are relevant to the analysis of land use and planning impacts for the project.

State Plans, Policies, Regulations, and Laws

No State plans, policies, regulations, or laws related to land use and planning are relevant to the analysis of land use and planning impacts for the project.

Regional and Local Plans, Policies, Regulations, and Ordinances

Yuba County 2030 General Plan

The following goal and policies in the Yuba County 2030 General Plan Health and Safety Element (Yuba County 2011a) apply to the project:

GOAL HS1: Reduce flood risk for the County's people and property.

- **Policy HS1.11.** Natural waterways should be protected from unnecessary alterations whenever flood protection structures or other forms of construction are proposed.

3.12.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended.

Implementing the project would have a significant impact on land use and planning if it would result in either of the following:

- Physically divide an established community
- Conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Analysis Methodology

Evaluating potential project impacts on land use was based on a review of planning documents pertaining to the project area, particularly the Yuba County 2030 General Plan (Yuba County 2011a), Final Yuba County 2030 General Plan Environmental Impact Report (Yuba County 2011b), Yuba County Development Code (Yuba County 2015), and Yuba County Zoning Map (Yuba County 2021).

Issues Not Discussed Further

Divide an Established Community. The project site is located within close proximity to residential properties; however, the levee system is already in place and the proposed project would not change existing land use conditions. The WPIC West Levee Extension would be constructed on agricultural parcels along the boundary of an Olivehurst residential community and would not divide this community in any way. The Goldfields West Levee would not be located near any designated communities. Therefore, the project would not divide any established communities and this issue is not discussed further in this EIR.

Impact Analysis and Mitigation Measures

Impact 3.12-1: Conflict with Relevant Plans, Policies, and Zoning.

The Yuba County 2030 General Plan provides comprehensive guidance for growth and development in the unincorporated areas of Yuba County. The proposed project would be consistent with goals, objectives, and policies contained in the Plan that address flood risk reduction for the county's residents and property (i.e., Public Health and Safety Goal HS1). An evaluation of the project's consistency with land use and zoning designations is presented below. However, it should be noted that any inconsistency of the project with land use and zoning code designations is an issue related to land use regulation rather than a physical impact of the project on the environment. Where the project could conflict with a land use plan or policy that was adopted specifically for the purposes of preventing or reducing an adverse environmental effect, such potential conflicts are evaluated as stand-alone environmental impacts within each topic area of this EIR.

The project site is zoned as Exclusive Agricultural District (40 and 80 acres) and Extractive District. The majority of the project components would be built within the footprint of the existing levee system; therefore, the existing land use would not change. The only exceptions are the WPIC West Levee Extension, which would infringe on land zoned as Agricultural, and the Goldfields West Levee, which would infringe on land zoned as Agricultural and Extractive.

Extractive land within the Goldfields West levee footprint is not currently being used for mineral extraction. Additionally, the new levee would be constructed on an existing mine tailing embankment. This levee and maintenance zone also would overlap approximately 4 acres of land zoned as Agricultural that would be converted to non-agricultural use. The WPIC West Levee Extension also would require conversion of approximately 28 acres of land zoned as Agricultural to non-agricultural use. However, these land use conversions would not require rezoning because the conversion extent would be relatively small. In the Yuba County Development Code, it states that Major Utilities, such as Yuba County levee systems, are allowable in areas zoned as Agricultural District and Natural Resource District.

The proposed project would provide long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events. The project would not change the overall character of lands in the project area or result in land use inconsistencies with local and regional plans. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

The project would have no significant impact, and therefore no residual significant impact, related to land use or planning.

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3.13 Mineral Resources

This section discusses the existing mineral resources of the project site; describes applicable regulations; and analyzes potential project impacts related to mineral resources.

3.13.1 Environmental Setting

Under the Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The board's decision to designate an area is based on a classification report prepared by CGS and on input from agencies and the public. The northern project site as well as the WPIC West Levee Extension and the northern portion of the WPIC West Levee is within the designated Yuba City-Marysville Production-Consumption Region for Portland cement concrete-grade aggregate, which includes all designated lands within the marketing area of the active aggregate operations supplying the Yuba City-Marysville urban center (Habel and Campion 1986).

In compliance with SMARA, CGS has established the Mineral Resource Zone (MRZ) classification system shown in **Table 3.13-1** to denote both the location and significance of key extractive resources.

Table 3.13-1. California Geological Survey Mineral Land Classification System

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

Note: MRZ = Mineral Resource Zone.
Source: Habel and Campion 1988:6

The portion of the project site along the western edge of the Yuba Goldfields and portions of the Yuba River South Levee are designated as MRZ-2. The WPIC West Levee Extension is categorized as MRZ-1 and MRZ-4 and the northernmost portion of the WPIC West Levee is categorized as MRZ-4. The Feather River East Levee, Bear River North Levee, and Bear River Setback Levee are not within a designated MRZ. (Habel and Campion 1986).

Many abandoned and active mines are scattered throughout the Yuba River watershed, and damage from historic hydraulic mining for gold is visible throughout the watershed. Historically, Yuba County's mineral resource extraction included gold, platinum, molybdenum, copper, zinc, sand gravel, and crushed stone. Although Yuba County lies within the Sierra Nevada Gold Belt, which contains seam-type gold deposits, most gold mining in Yuba County has been placer

mining of the Goldfields area. The Goldfields have been extensively mined over the last 100 years, and dredger gold mining operations are ongoing in the Goldfields.

Western Aggregates holds vested mining rights on 3,900 acres of land in the Goldfields. Western Aggregates' existing operations consist primarily of sand and gravel removal and processing. Kino Aggregates operates an active aggregate mining operation on approximately 364 acres in western portion of the Goldfields, including adjacent to the project site.

The piles of cobbles deposited during dredging operations are a valuable source of sand and gravel, which are used for construction. Construction aggregates are an important building material used in Portland cement concrete, asphalt concrete, plaster, and stucco and as a road base material. In terms of volume and price, there is no economically feasible substitute for aggregate products in the construction industry. Western Aggregates and Kino Aggregates existing operations consist primarily of sand and gravel removal and processing.

3.13.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to mineral resources are relevant to the analysis of mineral resource impacts for the project.

State Plans, Policies, Regulations, and Laws

SMARA (PRC Section 2710 et seq.) was enacted in 1975 to regulate mineral resource extraction. The Act requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative land uses, and the elimination of hazards to public health and safety from the effects of mining activities. SMARA encourages the conservation and the production of extractive mineral resources, requiring the State Geologist to identify and attach levels of significance (MRZs) to the State's varied extractive resource deposits.

SMARA Section 2770(a) states that "a person shall not conduct surface mining operations unless a permit is obtained from, a reclamation plan has been submitted to and approved by, and financial assurances for reclamation have been approved by the lead agency for the operation pursuant to this article" except as provided in this section. SMARA Section 2735 defines surface mining operations as "all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine." The statute does not define "mining." Caselaw describes mining as the removal of material (e.g., rock, stone, mineral) because of its value for some purpose other than development of the site. (Hansen Bros. Enters. v. Bd. of Supervisors (1996) 12 Cal. 4th 533, fn. 7.) The proposed on-site excavation and use of material in project construction, including the Goldfields West Levee, therefore is not a process involving the mining of minerals. Consequently, SMARA does not apply to the project.

Regional and Local Plans, Policies, Regulations, and Ordinances

The following goals and policies of the Yuba County 2030 General Plan are applicable to the project and mineral resources (Yuba County 2011).

GOAL NR8: Provide for sustained mining operations as a fundamental component of the local economy.

Policy NR8.3: The County's zoning and developments standards will be designed to protect mineral resource zones and prevent introduction of incompatible land uses in areas with ongoing, viable mining operations.

3.13.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

Significance criteria are based on Appendix G of the State CEQA Guidelines. The project would have a significant impact on mineral resources if it would result in either of the following:

- 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
- 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

Analysis Methodology

The analysis of potential impacts on mineral resources was based on a review of mineral land classification studies prepared by CGS, and Yuba County.

Impact Analysis

Impact 3.13-1: Loss of Availability of Known Mineral Resources or Locally Important Mineral Resource Recovery.

The Goldfields contain several thousand acres of economically valuable sand and gravel resources, as well as gold (and potentially other precious metals). The Goldfields West Levee portion of the project site and portions of the Yuba River South Levee are designated as MRZ-2, meaning that significant mineral deposits are present or there is a high likelihood of their presence. Additionally, these portions of the project site are delineated as an economically valuable source of mineral resources in the Yuba County 2030 General Plan. The general plan identifies policies directing that land so designated should be protected from preclusive and incompatible land uses so that the mineral resources within these lands are available when needed (Yuba County 2011). Yuba River South Levee improvements would occur within the footprint of the existing levee and maintenance area and would not affect availability of mineral resources. Approximately 40 percent of the portion of the project site that is within the Goldfields has been mined and reclaimed within the past 20 years. Because the Goldfields West Levee would be constructed along an existing embankment on the western edge of the

Goldfields, it would infringe very slightly (15 acres) on the portion of the Goldfields from which aggregate has not been recently extracted, would not interfere with any current mining activities, and would not block access to other mineral resources in the Goldfields. In addition, the existing aggregate materials in the Goldfields portion of the project site would be used to construct the new levee embankment, which would be an appropriate use of aggregate resources at the project site. Use of resources to augment aggregate base on portions of the levee crowns elsewhere on the project site also would be an appropriate use of these resources. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

The project would have no significant impact, and therefore no residual significant impact, on mineral resources.

3.14 Noise

This section describes the ambient noise environment in the project vicinity, summarizes applicable noise- and vibration-related standards, analyzes the potential noise and vibration impacts of the proposed project, and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level.

3.14.1 Environmental Setting

Environmental Acoustics and Vibration Fundamentals

Sound, Noise, and Acoustics

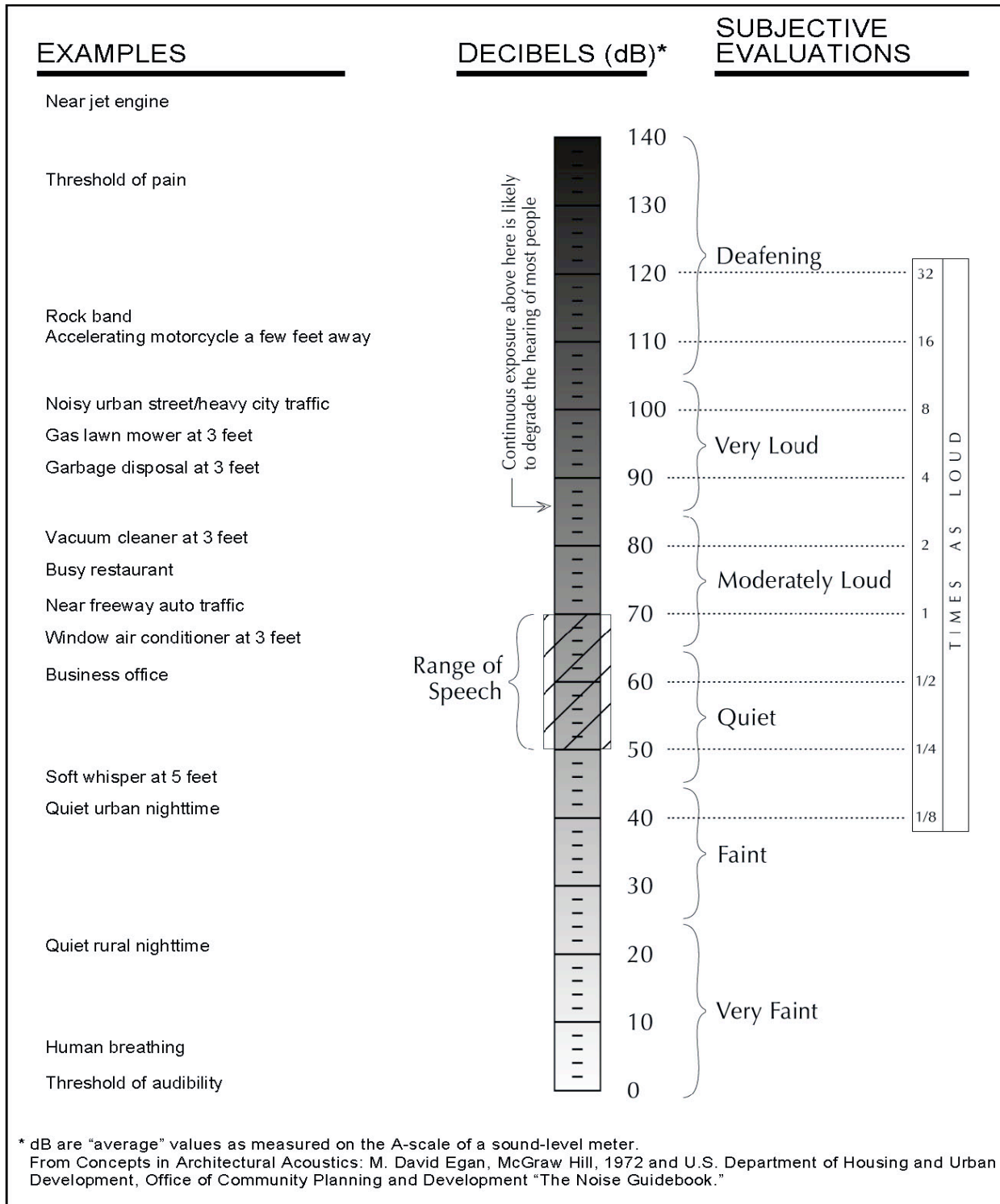
Sound is the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium, such as air. Noise is defined as unwanted (loud, unexpected, or annoying) sound. Acoustics is the physics of sound. Excessive exposure to noise can result in adverse physical and psychological responses (e.g., hearing loss and other health effects, anger, and frustration); interfere with sleep, speech, and concentration; or diminish quality of life.

The amplitude of pressure waves generated by a sound source determines the perceived loudness of that sound source. A logarithmic scale is used to describe sound pressure level in terms of decibels (dB). The threshold of human hearing (near-total silence) is approximately 0 dB. A doubling of sound energy corresponds to an increase of 3 dB. In other words, when two sources at a given location are each producing sound of the same loudness, the resulting sound level at a given distance from that location is approximately 3 dB higher than the sound level produced by only one of the sources. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously combine to produce 73 dB.

The perceived loudness of sounds depends on many factors, including sound pressure level and frequency content. However, within the usual range of environmental sound levels, perception of loudness is relatively predictable and can be approximated through frequency filtering using the standardized A-weighting network. A-weighted decibels (expressed as dBA) is an overall frequency-weighted sound level in dB, which approximates the frequency response of the human ear. There is a strong correlation between A-weighted sound level and community response to noise. For this reason, the A-weighted sound level has become the standard descriptor for environmental noise assessment. All noise levels reported in this section are in terms of A-weighting. **Figure 3.14-1** illustrates sound levels associated with common sound sources.

As discussed above, a doubling of the sound energy results in a 3-dB increase in sound. In typical noisy environments, the healthy human ear generally does not perceive noise-level changes of 1 to 2. However, people can begin to detect 3-dB increases in noise levels. An increase of 5 dB is generally perceived as distinctly noticeable and a 10-dB increase is generally perceived as a doubling of loudness (USDOT 2018).

Figure 3.14-1. Decibel Scale and Common Noise Sources



Source: Egan 1988

The following sound level descriptors are commonly used in environmental noise analyses:

- **Equivalent sound level (L_{eq})** – An average of the sound energy occurring over a specified time period. In effect, the L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour, A-weighted equivalent sound level ($L_{eq[h]}$) is the energy average of A-weighted sound levels during a 1-hour period.
- **Maximum sound level (L_{max})** – The highest instantaneous sound level measured during a specified period.
- **Percentile-exceeded sound level (L_n)** – The sound level exceeded “n” percentage of a specified period. For example, L_{10} is the sound level exceeded 10 percent of the time and L_{90} is the sound level exceeded 90 percent of the time.
- **Day-night average level (L_{dn})** – The energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours (10 p.m.-7 a.m.).
- **Community noise equivalent level (CNEL)** – The energy-average of the A-weighted sound levels occurring over a 24-hour period, with penalties of 10 dB and 5 dB, respectively, applied to A-weighted sound levels occurring during the nighttime hours (10 p.m.-7 a.m.) and the evening hours (7 p.m.-10 p.m.). The CNEL is similar to L_{dn} and is usually within 1 dB of the L_{dn} (for all intents and purposes, the two measurements are interchangeable).

Human Response to Noise

Excessive and chronic exposure to elevated noise levels can result in auditory and nonauditory effects on humans. Auditory effects of noise on people are related to temporary or permanent hearing loss caused by loud noises; nonauditory effects are behavioral and physiological. The nonauditory behavioral effects of noise on humans are primarily the subjective effects of annoyance, nuisance, and dissatisfaction, which can interfere with activities such as communications, sleep, and learning. Researchers have attempted to discover correlations between exposure to elevated noise levels and physiological health problems, such as hypertension and cardiovascular disease. The research infers that noise-related health issues are primarily the result of behavioral stressors, rather than a direct noise-induced response. The extent to which noise contributes to nonauditory health effects remains a subject of considerable research (Basner et al. 2014).

The degree to which noise causes annoyance and interference is highly subjective and may be influenced by several nonacoustic environmental and physical factors. The number and effect of these factors vary depending on the individual characteristics of the noise environment, such as sensitivity, level of activity, location, time of day, and length of exposure. One key to predicting human response to a new noise environment is the individual level of adaptation to the existing noise environment. The greater the noise-level change that can be attributed to a new noise

source, relative to the environment to which an individual has become accustomed, the less tolerable the new noise source will be to the individual.

Noise Attenuation

Sound from a localized source (i.e., stationary source) propagates uniformly outward in a spherical pattern. The sound level attenuates (decreases) at a rate of 6 dB (hard ground)² to 7.5 dB (soft ground)³ for each doubling of distance from a point/stationary source. Roadways, highways, and to some extent moving trains, consist of several localized noise sources on a defined path; these are treated as “line” sources, which approximate the effect of several stationary sources. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. Therefore, noise from a line source attenuates less with distance than noise from a stationary source.

Noise can also be attenuated by the presence of solid barriers including walls, earth mounds, and buildings located between the source and receptor. Noise attenuation provided by common building materials ranges between 18 dBA and 40 dBA, depending on the type, thickness, and weight of walls (Federal Highway Administration [FHWA] 2011). The national average sound-level reduction from buildings is 15 dB with windows open and 25 dB with windows closed (EPA 1974).

Ground Borne Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides) and human activity (explosions; traffic; and operation of machinery, trains, or construction equipment). Vibration sources may be continuous (e.g., operating factory machinery) or transient (e.g., explosions).

Vibration can be described in terms of displacement, velocity, or acceleration. Vibration is typically described by its peak and root-mean-square amplitudes. The root-mean-square value can be considered an average value over a given time interval. The peak vibration velocity is the same as the “peak particle velocity” (PPV), generally presented in units of inches per second. PPV is the maximum instantaneous positive or negative peak of the vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (Federal Transit Administration [FTA] 2006; Caltrans 2013b). The root-mean-square amplitude is typically used to assess human annoyance caused by vibration.

² Any highly reflective surface in which the phase of the sound energy is essentially preserved upon reflection; examples include water, asphalt, and concrete (FHWA 2011).

³ Any highly absorptive surface in which the phase of the sound energy is changed upon reflection (FHWA 2011).

Sensitive Receptors

Land uses defined by Federal, State, and local regulations as noise-sensitive vary slightly but typically include schools, hospitals, rest homes, places of worship, long-term care facilities, mental care facilities, residences, convalescent (nursing) homes, hotels, certain parks, and other similar land uses. The Caltrans Technical Noise Supplement (Caltrans 2013b) defines a noise receiver or receptor as “any natural or artificial sensor that can perceive, register, or be affected by sound, such as a human ear, or a microphone.” The Office of Noise Control in the State Department of Health Services defines noise level exposure considered to be acceptable based on land use type, as specified in the regulatory setting below.

Several segments of the Project are proposed within 50 feet of an existing noise sensitive receptor including single family homes within the Plumas Ranch subdivision south of Feather River Road, and mobile homes within the Casa Mia Mobile Home Park along Simpson Dantoni Road. Other noise sensitive uses are found along the construction haul routes including single family homes along SR 70.

Existing Noise and Vibration Sources

Within Yuba County, major sources of noise and vibration include roadway traffic on SR 65, SR 70, major arterials, and local roadways; railroad noise; aircraft operations; and fixed sources including industrial or commercial activity, mining, motorsports, and farming. Vehicle traffic is the primary noise source in the project area. As shown in **Table 3.14-1**, noise level contours ranging from a high of 76 dBA L_{dn} estimated at 100 feet along SR 65 to a low of 52 dBA L_{dn} at 100 feet from Algododn Road (Yuba County 2011).

Table 3.14-1. Existing Roadway Noise in Project Area

Existing Sources of Roadway Noise	Annual Average Daily Traffic (number of vehicles)	Noise Contour at 100 feet from Roadway (dBA L_{dn})
State Route 70	19,940	71
State Route 65	19,785	76
Feather Road Boulevard	458	54
North Beale Road	25,917	71
Simpson/Dantoni Lane	11,629	67
Plumas Arbogo Road	4,221	63
Algododn Road	814	52
McGowen Parkway	12,076	65

Notes: dBA = A-weighted decibels; L_{dn} = day-night average level
Source: Yuba County 2011

Other mobile noise sources in the vicinity of the project include the Union Pacific Railroad, which operates two lines in the County that converge in Marysville. Noise contours at 100 feet from the UPRR rail lines range from 74 to 78 dBA L_{dn} (Yolo County 2011).

Stationary sources that contribute to ambient noise in the project vicinity include Marysville Raceway Park located at 1468 Simpson Lane. A variety of race car series use the track on

weekends. When operating, the cars can generate noise levels ranging from 88 to 100 dBA at 100 feet from the track (Yuba County 2011). Quarry operations in the Yuba Goldfields also contribute to ambient noise in the project area with quarry equipment including crushers, screeners, bucket lines, and conveyor systems generating noise that contributes to background levels.

Ambient Noise Levels

Noise measurements were taken at six noise sensitive locations where the highest project-related noise levels are anticipated to occur during project construction, as shown in **Figure 3.14-2**. Short-term, 15-minute noise measurements were made at each site on Friday September 10, 2021, using a RION NL-52 Type 1 sound level meter equipped with a microphone and a windscreen. The monitoring device was set to collect continuous 5-minute L_{max} and L_{eq} measurements using A-weighting and slow response.

Table 3.14-2 summarizes the ambient noise levels recorded at each site. As shown, the L_{max} ranged from a low of 51.8 dBA at Site 2, which is in a rural setting, to a high of 74.7 dBA at Site 4, where the receptor is exposed to highway noise from SR 70. **Appendix F, “Noise Monitoring and Modeling Results,”** includes the complete results.

Table 3.14-1. Ambient Noise Levels Measured at Nearby Sensitive Receptors

Location	Time Period	L_{max} (dBA)	L_{eq} (dBA)	Noise Sources
Site 1 – Casa Mia Mobile Home Park	9:52 a.m. – 10:05 a.m.	53.4	49.1	Residence located nearby. Additionally, a helicopter was flying overhead.
Site 2 – Residence on Griffith Avenue	10:17 a.m. – 10:32 a.m.	51.8	44.6	Very quiet. Distant traffic to the south.
Site 3 – Residence on Mage Avenue	10:57 a.m. – 11:12 a.m.	64.9	58.5	Vehicle traffic noise nearby. Some birds in adjacent orchards.
Site 4 – Residence on Old Marysville Road	11:24 a.m. – 11:39 a.m.	74.7	61.1	Nearby traffic noise from SR 70 and other local roadways in the area.
Site 5 – Residence on Feather Ridge Drive	12:19 p.m. – 12:34 p.m.	64.5	49.9	Distant construction noise.
Site 6 – Residence on Dos Rios Court	12:56 p.m. – 1:11 p.m.	74.3	60.8	Nearby construction noise. Vehicles entering and exiting the “staging area” location adjacent to Bear River North Levee.

Notes: L_{eq} = energy-equivalent noise level; L_{max} = maximum noise level.
 Source: Noise monitoring data collected by GEI Consultants, Inc. in 2021

Figure 3.14-2. Noise Monitoring Locations



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2021Dec01 RS

Source: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021; noise monitoring sites identified and monitored by GEI Consultants, Inc. in 2021

Existing Vibration Environment

Existing vibration levels are expected to be relatively low, with infrequent noticeable vibration sources. The primary sources of vibration in the project vicinity include highway noise, operations of the UPRR on nearby rail lines, and quarry equipment including crushers, screeners, bucket lines, and conveyor systems operating in the Yuba Goldfields.

3.14.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

U.S. Environmental Protection Agency

The EPA Office of Noise Abatement and Control was established to coordinate Federal noise control activities. The Office of Noise Abatement and Control established guidelines in response to the Federal Noise Control Act of 1972 to identify and address the effects of noise on public health and welfare, and the environment. **Table 3.14-3** summarizes EPA recommended guidelines for noise levels considered safe for community exposure (EPA 1974). The yearly average L_{eq} for a person seeking to avoid hearing loss over his or her lifetime should not exceed 70 dB. To minimize interference and annoyance, noise levels should not exceed 55 dB L_{dn} in outdoor activity areas and 45 dB L_{dn} in residential structures.

Table 3.14-3. Summary of United States Environmental Protection Agency Recommended Noise Level Standards

Effect	Sound Level (decibels)	Area
Hearing loss	$L_{eq(24)} \leq 70$	All areas
Interference with and annoyance during outdoor activities	$L_{dn} \leq 55$	Outdoor areas of residences and farms, and other areas where people spend widely varying amounts of time or where quiet is a basis for use
	$L_{eq(24)} \leq 55$	Outdoor areas where people spend limited amounts of time, such as school yards and playgrounds
Interference with and annoyance during indoor activities	$L_{dn} \leq 45$	Indoor residential areas
	$L_{eq(24)} \leq 45$	Other indoor areas with human activities, such as schools

Notes: L_{dn} = day-night average level; $L_{eq(24)}$ = equivalent noise level (the sound energy averaged over a 24-hour period)
Source: U.S. Environmental Protection Agency 1974:3

Ground Borne Vibration

The FTA has developed guidelines for assessing the significance of vibration produced by transportation sources and construction activity (FTA 2006). To address human response (annoyance) to ground borne vibration, FTA has established maximum acceptable vibration thresholds for different land uses. These guidelines recommend 72 vibration dB for residential uses and buildings where people normally sleep when the source of vibrations is frequent in nature (FTA 2006).

FTA guidelines also provide criteria for ground borne vibration effects with respect to building damage during construction activities (FTA 2006). According to FTA guidelines, a vibration-damage criterion of 0.50 in/sec PPV should be considered for reinforced-concrete, steel, or timber—materials present in areas anticipated to be affected by project activities.

State Plans, Policies, Regulations, and Laws

California Building Standards

Title 24 of the CCR, also known as the California Building Standards Code, establishes building standards applicable to all occupancies throughout the State. The code provides acoustical regulations for exterior-to-interior sound insulation and for sound and impact insulation between adjacent spaces of various occupied units. The Title 24 regulations state that interior noise levels generated by exterior noise sources shall not exceed 45 dB L_{dn}, with windows closed, in any habitable room for residential uses (OPR 2017).

State Office of Planning and Research Noise Element Guidelines

The State Office of Planning and Research has established Noise Element Guidelines that recommend exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. Yuba County has adopted these standards into their General Plan Public Health and Safety Element. **Figure 3.14-3** summarizes the interpretation of different land use categories and noise levels considered to be acceptable, conditionally acceptable, or clearly unacceptable for each land use category.

Regional and Local Plans, Policies, Regulations, and Ordinances

Yuba County 2030 General Plan

The following goals and policies from the Yuba County 2030 General Plan (Yuba County 2011) Public Health and Safety Element are relevant to noise- and vibration-related effects of the proposed project.

GOAL HS 10: Noise and Vibration. Ensure that noise does not substantially reduce the local quality of life.

Policy HS 10.4. If existing noise levels exceed the maximum allowable noise levels listed in Table Public Health and Safety-2 (*see Table 3.14-4*), projects are required to incorporate mitigation to reduce noise exposure in outdoor activity areas to the maximum extent feasible and include mitigation to achieve acceptable interior noise levels as allowed in Public Health and Safety Table 1 (*refer to Figure 3.14-3*).

Figure 3.14-3. Maximum Allowable Noise Exposure from Transportation Noise Sources at Noise-sensitive Land Uses

LAND USE	INTERIOR SPACES		OUTDOOR ACTIVITY AREAS (dBA L _{DN})					
	DBA L _{DN}	DBA L _{EQ}	55	60	65	70	75	80
Residences	45	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Hotels, Motels	45	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Schools, Libraries, Museums, Places of Worship, Hospitals, Nursing Homes	45	45	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Theaters, Auditoriums, Concert Halls, Amphitheaters	35	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Outdoor Spectator Sports	-	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Playgrounds, Parks	-	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Golf Courses Riding Stables, Water Recreation, Cemeteries	-	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Office Buildings, Retail, and Commercial Services	45	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Industrial, Manufacturing, Utilities, Agriculture	-	-	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray	Light Gray

	Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise requirements.
	Conditionally Acceptable – New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
	Normally Unacceptable – New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable – New construction or development clearly should not be undertaken.

Notes: dBA = A-weighted decibels; L_{dn} = day-night average noise level; L_{eq} = energy-equivalent noise level. This table does not apply to existing transportation noise sources affecting existing land uses. Outdoor activity areas are the portion of a property where activities are normally expected. This would include portions of backyards, decks, balconies, pools, sports or game courts, and patios, but would not include front yards, spaces next to parking, roads, driveways, or vehicular loading areas. Hospitals and nursing homes use the L_{dn} interior standard, whereas schools, libraries, museums, and places of worship use a L_{eq} interior standard. Office buildings have an interior standard, but retail and commercial service uses do not have an interior standard.
 Source: Governor's Office of Planning and Research 2003 General Plan Guidelines.

Source: Yuba County 2011

Table 3.14-4. Maximum Allowable Noise Exposure from Non-transportation Noise Sources at Noise-sensitive Land Uses

Noise Level Descriptor	Daytime (7 a.m. – 10 p.m.)	Nighttime (10 p.m. – 7 a.m.)
Hourly L_{eq}	60 dBA	45 dBA
L_{max}	75 dBA	65 dBA

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent noise level; L_{max} = maximum noise level.

Each of the noise levels specified shall be lowered by 5 dBA for simple tone noises, noises consisting primarily of speech, music, or for recurring impulsive noises. These noise-level standards do not apply to residential units established in conjunction with industrial or commercial use (e.g., caretaker dwellings). Noise-sensitive land uses include schools, hospitals, rest homes, long-term care facilities, mental care facilities, residences, and other similar land uses.

Source: Yuba County 2011

- Policy HS10.5. The maximum noise level shall not exceed the performance standards shown in Table Public Health & Safety-3 (*refer to Table 3.14-5*), as measured at outdoor activity areas of any affected noise-sensitive land use except:
 - If the ambient noise level exceeds the standard in Table Public Health & Safety-3 (**Table 3.14-5**), the standard becomes the ambient level plus 5 dBA.
 - Reduce the applicable standards in Table Public Health & Safety-3 (**Table 3.14-5**) by 5 dB if they exceed the existing ambient level by 10 or more dBA.
- **Policy HS 10.6.** New developments shall provide all feasible noise mitigation to reduce construction and other short-term noise and vibration impacts as a condition of approval.
- **Policy HS 10.7.** New developments shall ensure that construction equipment is properly maintained and equipped with noise control components, such as mufflers, in accordance with manufacturers’ specifications.

Table 3.14-5. Performance Standards for Non-transportation Noise Sources

Cumulative Duration of a Noise Event ¹ (minutes)	Maximum Exterior Noise Level Standards ²	
	Daytime dBA $L_{max}^{2,4}$	Nighttime dBA $L_{max}^{3,4}$
30-60	50	45
15-30	55	50
5-15	60	55
1-5	65	60
0-1	70	65

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent noise level; L_{max} = maximum noise level.

¹Cumulative duration refers to time within any 1-hour period.

²Daytime = hours between 7:00 a.m. and 10:00 p.m.

³Nighttime = hours between 10:00 p.m. and 7:00 a.m.

⁴Each of the noise levels specified shall be lowered by 5 dBA for tonal noise (i.e., a signal which has a particular and unusual pitch), or for noises consisting primarily of speech, or for recurring impulsive noises (i.e., sounds of short duration, usually less than 1 second, with an abrupt onset and rapid decay, such as the discharge of firearms).

Source: Yuba County 2011

Yuba County Municipal Code

Chapter 8.20 of the Yuba County Municipal Code contains the noise regulations within County limits described below (Yuba County 2018).

Section 8.20.140 – Ambient Base and Maximum Permitted Noise Levels

Table 3.14-6 shows ambient noise levels and maximum permitted noise levels in Yuba County. When the ambient level is less than those shown, the respective maximum noise level applies.

Table 3.14-6. Yuba County Noise Standards by Land Use Type

Zone	Time	Ambient Level (A-weighted decibels)	Maximum Noise Level Permitted (A-weighted decibels)
Single Family Residential	10:00 p.m. – 7:00 a.m.	45	55
	7:00 p.m. – 10:00 p.m.	50	60
	7:00 a.m. – 7:00 p.m.	55	65
Multi-family Residential	10:00 p.m. – 7:00 a.m.	50	60
	7:00 a.m. – 10:00 p.m.	55	65
Commercial, Commercial – Business Park	10:00 p.m. – 7:00 a.m.	55	65
	7:00 a.m. – 10:00 p.m.	60	70
M-1 (General Extractive)	Anytime	65	75
M-2 (Extractive)	Anytime	70	80

Source: Yuba County 2018, adapted by GEI Consultants, Inc. in 2021

Section 8.20.310 – Construction of Buildings and Projects

Section 8.20.310 of the Yuba County Ordinance Code prohibits unpermitted nighttime construction in or near residential zones:

It shall be unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 10:00 p.m. of one day and 7:00 a.m. of the following day, in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless a permit has been duly obtained beforehand from the Community Development and Services Agency's Director of the Planning Department as set forth in Section 8.20.710 of the code.

No permit is required to perform emergency work as defined in Article 1 of Chapter 8.20 of the Yuba County Ordinance Code.

Section 11.26.060 - Vibration

The Municipal Code states that no vibration shall be produced that is transmitted through the ground and is discernible without the aid of instruments by a reasonable person at the property lines of the site. Vibrations from temporary construction, demolition, and vehicles that enter and leave the subject parcel (e.g., construction equipment, trains, trucks, etc.) are exempt from this standard.

Beale Air Force Base Land Use Compatibility Plan

The Beale AFB Land Use Compatibility Plan (LUCP) (Sacramento Area Council of Governments [SACOG] 2010) addresses compatibility between the Beale AFB and surrounding land uses. Among other objectives, LUCPs strive to minimize the effects of aircraft noise on communities adjacent to airports and prevent uses incompatible with airport operations from locating near the airport.

3.14.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The significance criteria used to evaluate the project impacts to noise and vibration are adapted from Appendix G of the State CEQA Guidelines and applied using performance standards contained in the Yuba County 2030 General Plan. A significant impact related to noise and vibration issues would occur if the project would result in any of the following:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Generate excessive ground borne vibration or ground borne noise levels
- Expose people residing or working in the project area to excessive noise levels, for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport

Table 3.14-4 contains the County performance standards for noise exposure used for determining the significance of project-related impacts. Project-related construction activity would result in a significant impact to noise sensitive receptors if it would exceed 45 dBA L_{eq} or 65 dBA L_{max} during nighttime hours (10 p.m. – 7 a.m.), and 60 dBA L_{eq} or 75 dBA L_{max} during daytime hours (7 a.m. – 10 p.m.). For receptor locations where ambient noise levels were recorded to be higher than the adopted noise performance standards (sites 4 and 6), the maximum standard for each time period is increased by 5 dBA, as described in General Plan Policy HS10.5, then compared to with-project conditions.

Issues Not Discussed Further

Expose People Residing or Working in the Project Area to Excessive Noise Levels Generated by Private or Public Airports. The project is located more than 2 miles from the

nearest public airport or private airstrip. The northern portion of the project site is located within the Beale AFB Area of Influence Review Area 1 – Zone 6, and Review Area 2. However, the proposed project does not include a major land use action which would require LUCP review. Therefore, the proposed project would not result in potential compatibility issues with airport activities. The project would not expose people to excess noise levels due to the proximity to a public airport or private airstrip. No impact would occur from the project and this issue is not discussed further in this EIR.

Analysis Methodology

Vibrations from temporary construction activities are exempt from Yuba County’s vibration standards (Yuba County 2018). However, ground borne vibrations from construction were analyzed given the close proximity of sensitive receptors to some portions of the project site. Vibration levels were predicted for the project based on anticipated construction equipment and compared against the FTA-designated threshold for construction vibration damage criteria (0.3 PPV in/sec) (FTA 2006).

Construction-related noise levels were assessed using the Federal Highway Administration Roadway Construction Noise Model (RCNM) and input variables provided by the engineering team, an on-site field investigation, and review of aerial photography. Input variables considered in the model include the type of equipment used during each construction phase, percent of time equipment operates at full power (i.e., usage factor), and distance between the noise source and receptor. *See Appendix F, “Noise Monitoring and Modeling Results,”* for complete noise modeling inputs and results.

Table 3.14-7 presents relevant portions of the construction equipment noise database used to predict noise levels within the RCNM. The noise levels listed for each piece of equipment represent the A-weighted maximum sound level (L_{max}), measured at a distance of 50 feet from the construction equipment. These reference noise levels were used as inputs to the RCNM analysis conducted for the proposed project.

Assumptions used in the modeling varied depending on the nature of construction activity. At Site 1, construction of the cutoff wall represented the activity with the highest potential to generate noise levels that exceed County standards based on the nature of the equipment described above in **Table 3.14-7**. Modeling for noise exposure at receptor Site 1 assumed the operation of 12 pieces of equipment running simultaneously for 8 hours a day. In contrast, for receptor Site 3, levee construction was modeled as the worst-case scenario with 11 pieces of equipment running simultaneously. The remaining four sites were modeled for the levee reconstruction phase, which includes the levee-raising activities and seepage remediation (where applicable). The model scenario assumed 13 pieces of equipment were running simultaneously for the levee-raise condition.

Finally, modeling assumed staging areas adjacent to levee segments would primarily be used as parking and refueling areas. Two haul trucks per phase were assumed to operate simultaneously

at a given location, which captures noise generated by heavy trucks hauling material and equipment to and from the staging area.

Table 3.14-7. Construction Equipment and Sampled Noise Levels

Type of Equipment	Noise Levels (dBA) L _{max} at 50 Feet
Equipment/Supply Transport Trucks	80
Front-end Loader	79
Excavator	81
Compactor	83
Bulldozer	85
Highway Dump Truck	76
Grader	85
Generator	81
Pump	81
Roller	80
Scraper	80
Tractor	84
Pick-up Truck	75

Notes: L_{max} = maximum instantaneous sound level; dBA = A-weighted decibels
 Source: Federal Highway Administration 2006, adapted by GEI Consultants, Inc. in 2021

Construction Noise Modeling

Predicted noise levels experienced at the six receptors are shown in **Table 3.14-8** and compared to the ambient readings. As shown, predicted noise levels range from a low of 72.9 dBA (L_{eq}) to high of 86.5 dBA L_{eq} at the exterior property line of receptors. The predicted noise levels experienced at the six representative locations are substantially above the ambient noise levels recorded for each location.

It is important to note that this is a conservative, worst-case condition and the receptors would not be continuously exposed to such noise levels throughout the construction period. The RCNM captures a snapshot of potential construction-related noise at a specific location. Therefore, it does not account for fluctuation in noise levels throughout the day and in different portions of the overall work area. Because of the linear nature of the project, not all of the equipment assumed in the model would operate at the same time and location throughout the construction phase. In addition, construction phases would not overlap at any one location, and no receptor would be exposed to construction noise for the entirety of the construction period for the relevant levee. For example, at a given location, the receptor may experience several days of nearby construction activity for each phase, and the disturbance associated with each phase would be separated by periods when construction activities occur along other portions of the levee that are farther away. Further, the model assumes that the equipment is operating at full power during 40 percent of the workday, which generates the highest predicted noise values for each piece of equipment. It is also important to note that the noise-level estimates represent the phase during which construction noise levels are anticipated to be the highest and that construction noise levels during some phases would be substantially lower.

Table 3.14-8. Comparison of Ambient and Predicted Noise Exposure at Receptor Locations

Sensitive Receptor	Ambient Noise (Leq) ²	dBA Leq ³	dBA L _{max} ¹
Site 1 - Casa Mia Mobile Home			
Noise Level	49.1	86.5	81.2
Daytime Threshold – 60 dBA Leq 75 dBA L _{max}	-	Yes	Yes
Site 2- Residence on Griffith Avenue			
Noise Level	44.6	80.9	78.5
Daytime Threshold – 60 dBA Leq 75 dBA L _{max}	-	Yes	Yes
Site 3 – Residence on Mage Avenue			
Noise Level	58.5	85.5	83.6
Daytime Threshold – 60 dBA Leq 75 dBA L _{max}	-	Yes	Yes
Site 4 – Residence on Old Marysville Road			
Noise Level	61.1	86.0	83.6
Daytime Threshold – 65 dBA Leq 80 dBA L _{max}	*	Yes	Yes
Site 5 – Residence on Feather Ridge Drive			
Noise Level	49.9	72.9	70.5
Daytime Threshold – 60 dBA Leq 75 dBA L _{max}	-	Yes	No
Site 6- Residence on Dos Rios Court			
Noise Level	60.8	77.4	75.0
Daytime Threshold – 65 dBA Leq 80 dBA L _{max}	*	Yes	No

Notes: Project impacts are a comparison of existing noise levels measured at the six sites to the predicted existing plus project condition; due to some equipment not being available within the model, dump truck was used for water truck and haul truck and front-end loader was used for extended boom pallet loader; dBA = A-weighted decibels; Leq = energy-equivalent noise level; L_{max} = maximum noise level; RCNM = Roadway Construction Noise Model; N/A = not applicable

¹ L_{max} is the maximum among individual equipment L_{max} values.

² Leq is a summation of all individual Leq values.

Source: Noise monitoring data collected by GEI Consultants, Inc. in 82021; Yuba County 2011

Impact Analysis and Mitigation Measures

Impact 3.14-1: Substantial Increase in Ambient Noise Levels.

Construction Equipment Noise

Exposure to project-related construction noise would vary in intensity depending on the nature of the activity, duration of the activity, presence or absence of barriers, and distance between the receptor and the source. As discussed above, no single receptor would be exposed continuously to the full duration of construction for any project component. A given receptor may experience several days of nearby construction activity for each phase, and the disturbance associated with each phase would be separated by periods when construction activities occur along other portions of the levee that are farther away.

At Receptor 1, the closest project-related construction activity would occur approximately 53 feet from residential dwellings. This activity involves installing a soil-bentonite cutoff wall and raising segments of the Yuba South River Levee. Operation of excavators, dozers, front loaders, and trucks to remove aggregate surfacing and topsoil along the existing levee; excavation of a trench, placement of soil-bentonite slurry to form a cut off wall; and reconstruction of levee embankment is anticipated to occur over an approximately 5-month period (149 days) along a total of 7,600 feet of the Yuba South River Levee. However, sensitive receptors only occur adjacent to a small portion of the work area, primarily at the west end, and work adjacent to those receptors would occur for brief durations compared to the overall construction period.

The RCNM predicts that residential uses in the Casa Mia Mobile Home Park with unobstructed line of site to construction activity at the Yuba River South Levee would experience noise levels up to 86.5 dBA L_{eq} (81 dBA L_{max}). As discussed previously this is a maximum exposure level that would occur only when construction is taking place nearest to Receptor 1. Noise at Receptor 1 would fluctuate from the high of 86.5 dBA L_{eq} reported by the RCNM when activity is closest to inaudible when activity takes place at the upper segment of the project, approximately 1.5 miles away. In comparison, ambient noise monitored at Receptor 1 registered 49.1 dBA L_{eq} . During a portion of the 5-month construction period, Receptor 1 would experience an intermittent and periodic increase in noise levels that exceed the County exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. While temporary in nature and occurring within daytime hours consistent with the County Code, project-related noise experienced at Receptor 1 is considered to be a substantial increase over ambient conditions.

Receptor 2 is located 105 feet from the Yuba South River Levee. Project-related construction at this location would be associated with levee raising only and is predicted to generate a noise level of up to 80.9 L_{eq} (78.5 dBA L_{max}) at the exterior of Receptor 2. In comparison, ambient noise monitored at Receptor 2 registered 44.6 dBA L_{eq} . As discussed previously this is a maximum exposure level that would occur only when construction is taking place nearest to the receptor. The noise level experienced at the exterior of Receptor 2 would fluctuate over time and distance, from the predicted high of 80.9.5 dBA L_{eq} at 105 feet from construction to imperceptible (i.e., ambient conditions) as distance between the source and receptor increases. During a portion of the 5-month construction period, Receptor 2 would experience an intermittent and periodic increase in noise levels that exceed the County's exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. While temporary in nature and occurring within daytime hours consistent with the County Code, project-related construction noise predicted at Receptor 2 is considered a substantial increase over ambient conditions.

Project activities near Receptor 3 would include WPIC West Levee Extension construction, potentially as close as approximately 58. Construction activities would include import and placement of soil fill and aggregate base to construct the new levee embankment. Operation of dozers, graders, and front-end loaders is predicted to generate noise levels of up to 85.5 dBA L_{eq}

(83.6 dBA L_{max}) at the exterior of Receptor 3. In comparison, ambient noise monitored at Receptor 3 registered 58.5 dBA L_{eq} . Noise levels predicted at Receptor 3 represent maximum levels that would occur only when construction is taking place nearest to the receptor and would fluctuate from the predicted high of 83.6 dBA L_{eq} at 58 feet to imperceptible (i.e., ambient conditions) when work occurs along portions of SR 70 more than 0.5 mile away. During relatively brief portions of the approximately 5-month construction period, Receptor 3 would experience an intermittent and periodic increase in noise levels that exceed the County's exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. While temporary in nature and occurring within daytime hours consistent with the County Code, project-related noise experienced at Receptor 3 is considered a substantial increase over ambient conditions.

Receptor 4 is approximately 250 feet from the WPIC West Levee. The methods of construction in this area would be similar to those for levee raising described for the Yuba River South Levee above and is predicted to generate noise levels of up to 86 dBA L_{eq} (83.6 dBA L_{max}) at the exterior of Receptor 4. Ambient noise monitored at Receptor 4 registered 61.1 dBA L_{eq} . Noise levels predicted at Receptor 4 would fluctuate from the predicted high of 86 dBA L_{eq} to imperceptible (i.e., ambient conditions) when construction occur along other segments of the WPIC, up to approximately 3 miles away. During relatively brief portions of the 6-month construction period, Receptor 4 would experience an intermittent and periodic increase in noise levels that exceed the County's exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. While temporary in nature and occurring within daytime hours consistent with the County Code, project-related noise experienced at Receptor 4 is considered a substantial increase over ambient conditions.

Project related construction on the southern section of the WPIC West Levee would occur approximately 264 feet from Receptor 5 which is located along Feather Ridge Road. Levee raising is predicted to generate noise levels that fluctuate from a high of 85.5 dBA L_{eq} (83.6 dBA L_{max}) to imperceptible (i.e., ambient conditions) when construction occurs along the northern portions of the levee. During a portion of the 6-month construction period, Receptor 5 would experience an intermittent and periodic increase in noise levels that exceed the County's exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. While temporary in nature and occurring within daytime hours consistent with the County Code, project-related noise experienced at Receptor 5 is considered a substantial increase over ambient conditions

Project construction would take place as close as 158 feet from Receptor 6 located along Dos Rios Court. Project improvements to the Bear River North and Bear River Setback Levees near this location include installing a seepage berm and relief wells, placing a landside blanket, installing a soil bentonite cutoff wall, and raising the levee by up to 1 foot in height. A staging area to store material and equipment and coordinate field crews would also be sited in this area. Operation of dozers, graders, and front-end loaders is predicted to generate noise levels of up to 77.4 dBA L_{eq} (75 dBA L_{max}) at the exterior of Receptor 6. Ambient noise monitored at Receptor 6 registered 60.8 dBA L_{eq} . Noise levels predicted at Receptor 6 would fluctuate from a predicted high of 77.4 dBA L_{eq} at 158 feet to imperceptible (i.e., ambient conditions) when construction is

taking place on distant portions of the Bear River North Levee. During a portion of the 2-month construction period, Receptor 6 would experience an intermittent and periodic increase in noise levels that exceed the County's exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. While temporary in nature and occurring within daytime hours consistent with the County Code, project-related noise experienced at Receptor 6 is considered a substantial increase over ambient conditions.

Feather River East Levee improvements would include levee raising approximately 365 feet from a farm residence off Feather River Road. Equipment operation is predicted to generate noise levels of 85 dBA L_{eq} (83.6 dBA L_{max}) at 50 feet. Assuming no intervening barriers and soft terrain, the predicted noise level at the exterior of this receptor is approximately 70 dBA L_{eq} , which would exceed the County's exterior standard of 60 dBA L_{eq} and 75 dBA L_{max} for non-transportation noise sources. However, because activities in this portion of the project site would be limited to adding aggregate base to the levee crown, noise levels that exceed County thresholds at the affected residence would likely be limited to several days and would only occur during daytime hours. In addition, this residence is surrounded by orchards, and noise levels would likely be similar to those produced by agricultural equipment that operates regularly in the vicinity.

Material and Equipment Hauling

Project-related construction would require transporting heavy equipment and materials to the project site and workers commuting to and from the site. As indicated in Section 2.4 "Description of Proposed Project," and presented in **Table 3.14-9**, the project would generate a total of approximately 89,000 total truck trips over the duration of the construction period to transport materials to and from the project sites. The single largest daily trip increase is associated with construction of the WPIC West Levee Extension, which would generate 229 trips per day over the 5-month construction period.

Haul routes used for each phase of the project include the following.

- **Yuba River South Levee:** SR 70, North Beal Road, Simpson Lane, Dantoni Road, Bryden Road
- **Goldfields West Levee:** Simpson Dantoni Road and Dantoni Road
- **Feather River East Levee:** SR 70, Feather River Boulevard, and toe access road and/or levee patrol road from Road 512 and from Star Bend Boat Ramp
- **Bear River North Levee and Setback Levee:** SR 70, Feather River Boulevard, Road 512
- **WPIC West Levee:** SR 70, Feather River Boulevard, Algodon Road, Plumas-Arboga Road
- **WPIC West Levee extension:** SR 65, SR 70, McGowan Parkway, Dan Avenue, Rose Avenue, Mage Avenue

Table 3.14-9. Estimated Number of Truck Trips Required for Material Transport

Project Component	Approximate Total Number of Truck Trips	Construction Duration (days)	Number of Trips per Day
Goldfields West Levee	10,325	143	72
Yuba River South Levee	2,733	149	18
Feather River East Levee	2,065	112	18
Bear River North Levee	4,410	52	85
Bear River Setback Levee	830	10	83
WPIC West Levee and ODB Ring Levee	31,315	169	185
WPIC Levee Extension	37,285	163	229

Notes: ODB = Olivehurst Detention Basin, WPIC = Western Pacific Interceptor Canal
Sources: Project components identified by HDR, Inc. and GEI Consultants, Inc. in 2021

As shown earlier in **Table 3.14-1**, noise levels along haul routes range from a high of 76 dBA L_{dn} (SR 65) to a low of 52 dBA L_{dn} (Algodon Road) at 100 feet from the roadway centerline. Project construction activity would temporarily increase the number of average daily vehicle trips on surrounding roadways, but none of the haul routes would experience a doubling of trips during project construction. The increased traffic volume on haul routes from project-generated trips would not result in a noticeable (3 dB or greater) increase in traffic noise over current levels.

Operation and Maintenance Noise

Routine O&M activities for existing levees and associated structures would continue under current conditions and would be expanded to include new levee segments and associated new structures. O&M activities would be conducted near sensitive residential receptors and would typically result in minor noise from activities such as inspections and patrols, vegetation management, and burrowing animal control and abatement. Infrequent activities such as slope maintenance, erosion protection, and road maintenance along the levee embankment and toe access road. Grading and dragging the levee embankment would occur as needed (likely less than once per year), and aggregate resurfacing would only occur approximate once every 10 years. These activities would require less equipment and typically create substantially less noise than construction activities, but they could exceed daytime noise thresholds at nearby residences (no O&M activities would occur at night). However, equipment use that may exceed noise thresholds would operate for a short period near a given receptor (e.g., several hours to several days).

Conclusion

As shown in **Table 3.14-8**, project-related construction would expose sensitive receptors to a noise level that exceeds Yuba County’s daytime performance standard of 60 dBA L_{eq} and/or 75 dBA L_{max} for non-transportation noise sources. Therefore, the impact from construction noise is considered **significant**. Additionally, routine O&M activities could generate noise that exceeds

daytime noise thresholds at nearby residences. Therefore, impacts from O&M activities would be **potentially significant**.

The following mitigation measures have been identified to address temporary and permanent impacts.

Mitigation Measure 3.14-1a: Reduce Construction and Operations and Maintenance Noise Effects.

TRLIA will require its construction contractor(s) to implement the following measures to minimize noise effects on sensitive receptors during project construction and O&M activities that would exceed Yuba County noise thresholds and are not exempt from such thresholds. Noise-reducing construction practices will be implemented to minimize noise effects to the maximum degree feasible during construction. Measures that will be used to limit noise will include, but not be limited to, the following:

- Prohibit start-up of machines or equipment before 7 a.m. and after 7 p.m. Monday through Saturday and before 9 a.m. and past 6 p.m. on Sunday, except during 24-hour cutoff wall construction.
- Prohibit material and equipment deliveries before 7 a.m. and after 7 p.m., Monday through Saturday and before 9 a.m. and past 6 p.m. on Sunday, except during 24-hour cutoff wall construction.
- Restrict use of bells, whistles, alarms, and horns to safety-warning purposes.
- Locate fixed construction equipment (e.g., pumps and generators), construction staging and stockpiling areas, and construction vehicle routes as far as feasible from noise-sensitive receptors.
- Portable compressors, generators, pumps and other such devices will be covered with noise-insulating fabric, which is not to interfere with engine operations, and/or will employ other techniques to reduce noise.
- Ensure equipment complies with pertinent equipment EPA noise standards and has sound-control devices no less effective than those provided on the original equipment. No equipment will have unmuffled exhaust.
- Minimize equipment idling times by either shutting equipment off when not in use or reducing the maximum idling time to 5 minutes.
- Route construction-related truck traffic along roadways that will cause the least disturbance to residents.

Timing: Before and during construction.

Responsibility: TRLIA and its contractor(s).

Mitigation Measure 3.14-1b: Notify Nearby Residences of Construction Activities and Address Complaints.

TRLIA will require its construction contractor(s) to implement the following measure related to notification and complaint coordination during project construction and O&M activities that would exceed Yuba County noise thresholds and are not exempt from such thresholds:

- Prior to the start of construction activities or relevant O&M activities, provide written notification to residences within 300 feet of the construction areas. Notification will identify the type, duration, and frequency of construction activities, include anticipated dates and hours during which construction activities are anticipated to occur, and provide recommendations to assist residents in reducing interior noise levels (e.g., closing windows and doors).
- Designate a disturbance coordinator and conspicuously post this person's number around the project site and in construction notifications. The disturbance coordinator will be responsible for responding to any complaints about construction activities. The disturbance coordinator will receive all public complaints about construction disturbances and be responsible for determining the cause of the complaint and implementation of feasible measures to be taken to alleviate the problem.

Timing: Before and during construction.

Responsibility: TRLIA and its contractor(s).

Significance after Mitigation: Implementing requirements outlined in Mitigation Measure 3.14-1a would lead to properly operating equipment with worn mufflers replaced or through retrofitting equipment where mufflers do not presently exist. Noise level reductions of 10 dBA or more can be achieved with use of optimal muffler systems and keeping equipment in good working condition (FHWA 1976). Use of temporary acoustic shielding, properly siting staging areas, and directing traffic away from noise sensitive uses would reduce noise levels by up to 20 dBA where practical and feasible to implement (FHWA 1976). However, even with implementation of the measures above, noise levels would periodically exceed standards during certain times of day. While short in duration and temporary in nature, this impact would be **potentially significant and unavoidable**.

Impact 3.14-2: Excessive Ground Borne Vibration.

Table 3.14-10 presents ground-vibration levels associated with various construction equipment used during project construction and during transport from the staging areas. As shown, the project may cause random and/or transient ground borne vibration when equipment is in use ranging from 0 PPV when smaller equipment is used to a maximum of 0.048 PPV at 50 feet. Based on the vibration levels presented in **Table 3.14-10**, and distance to nearby residences, predicted vibration levels would not exceed the threshold of 0.3 inch per second PPV for continuous vibration sources at the nearest receptor structure (FTA 2006).

Table 3.14-10. Representative Vibration Source Levels for Typical Construction Equipment

Type of Equipment	Peak Particle Velocity at 25 feet (inches per sec)	Estimated Peak Particle Velocity at Nearest Sensitive Receptor
Large Bulldozer	0.089	0.048
Loaded Trucks	0.076	0.041
Small Bulldozer	0.003	0.000

Notes: Estimated peak particle velocity (ppv) at the nearest receptor calculated using $PPV_{Equipment} = PPV_{Ref} (25/D)^n$ (inches/second), where D is the distance from the equipment to the nearest receiver (50 feet), and n is 1.1, a value related to the attenuation rate through ground. (Caltrans 2013 Equation 12.)

Source: Federal Transit Authority 2006

During routine O&M activities, temporary ground borne vibrations would be generated from equipment and vehicle use. However, ground borne vibrations generated from O&M activities would be less than what is expected to be generated during construction due to the reduced equipment needs during O&M. Vibration levels would not be anticipated to exceed the threshold of 0.3 inch per second PPV for continuous vibration sources at the nearest residences (FTA 2006). Therefore, impacts associated with construction and operations would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

Implementing Mitigation Measures 3.14-1a and 3.14-1b would reduce the impact related to construction and O&M noise, but not to a less-than-significant level, because interior noise levels at adjacent noise-sensitive uses could exceed adopted standards during peak periods of construction and O&M activities. The Yuba County Code exempts certain activities in recognition that construction noise is temporary, is more acceptable when limited to daylight hours, and is expected as part of typical development. Nonetheless, TRLIA cannot demonstrate at this time that implementing this mitigation measures would enable the proposed project to avoid a substantial temporary, short-term increase in ambient noise levels, or that it would fully reduce the impact to a less-than-significant level. There are no additional feasible mitigation measures or alternatives that are available to further reduce this significant impact to a less-than-significant level. Because construction noise would likely exceed the performance standards adopted by Yuba County after implementation of all feasible mitigation measures, this impact would be **potentially significant and unavoidable**.

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3.15 Population and Housing

This section discusses existing population and housing in the project area, describes applicable regulations, analyzes potential project impacts related to short- and long-term impacts of the project, and identifies mitigation measures to reduce significant impacts.

3.15.1 Environmental Setting

Population

Yuba County has experienced population growth in the recent past, and this growth is forecasted to continue. The California Department of Finance (DOF) estimates that Yuba County's total population increased from 72,635 in 2011 to 79,407 in 2021, a 9 percent increase over the 10-year period (DOF 2021a). Approximately 80 percent of the 2021 population resided in the unincorporated areas of the county and the remaining population resided in incorporated areas (DOF 2021a).

SACOG projects a rapid population increase for the county in the coming years, as approved master-planned developments begin construction and transportation improvements stimulate further development in Yuba County (Yuba County 2021). In 2010, the Yuba County 2030 General Plan (Yuba County 2011) projected the growth rate through 2050 would be the second-highest in California, after neighboring Sutter County; Yuba County was expected to add 130,582 new residents between 2010 and 2050, a 179 percent increase.

Housing

According to DOF, the total number of housing units in Yuba County increased from 27,720 in 2011 to 29,487 in 2021 (DOF 2021b). The county's vacancy rate is approximately 7.8 percent (DOF 2021b). Approximately 71 percent of housing units were single-family homes, and the average household size was 2.88 (considered to be a relatively large household) (DOF 2021b).

In 2021, the total number of housing units in the unincorporated areas of Yuba County was 22,933 units, approximately 78 percent of the total housing units in the county (DOF 2021b). The majority of recent new housing construction has been in the unincorporated communities of Linda, Olivehurst, Arboga, and Plumas Lake.

Employment

Employment has a close relationship to housing. The types of local employers and the jobs they offer determine the income potential of those who live and work in Yuba County. In turn, earning capacity determines the type, size, and quality of housing that a household can afford.

Yuba County had a resident civilian labor force of 20,288 in 2010, but employed residents decreased by 5 percent between 2010 and 2018. The industry sector with the largest growth between 2010 and 2018 was arts, entertainment, recreation, accommodation, and food, which experienced 55 percent growth by adding 769 jobs. This increase was greater by nearly

30 percent than public administration, which experienced the next largest growth increase during the period of 28 percent. Approximately half of the industry sectors decreased in the number of employed residents during this period. The industry sector that experienced the highest decrease was transportation and warehousing, which lost 356 jobs between 2010 and 2018, a 26 percent decrease. These figures show that Yuba County's economy did not recover from the recession as well as the overall state economy. (Yuba County 2021.)

SACOG estimates that between 2016 and 2040, unincorporated Yuba County will add 6,485 jobs, a 51 percent increase (Yuba County 2021).

3.15.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to population or housing apply to the project.

State Plans, Policies, Regulations, and Laws

Section 65300 et seq. of the California Government Code establishes the obligation of cities and counties to adopt and implement general plans. A general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county, and of any land outside its boundaries that, in a city's or county's judgment, bears relation to its planning. The general plan addresses a broad range of topics, including land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support a city's or county's vision. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for a planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

Regional and Local Plans, Policies, Regulations, and Ordinances

No regional and local plans, policies, regulations, or ordinances related to population or housing apply to the project.

3.15.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

Significance criteria are based on Appendix G of the State CEQA Guidelines. The proposed project would have a significant impact on population and housing if it would result in either of the following:

- Induce substantial population growth in an area, either directly or indirectly
- Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere

Analysis Methodology

Potential project impacts on population and housing were analyzed based on characteristics of the project components and potential for levee improvements to increase flooding in areas not protected by the RD 784 levee system. Details of the hydraulic impact analysis methodology and results are presented in Section 3.11, “Hydrology and Water Quality.”

Issues Not Discussed Further

Substantial Population Growth

Implementing the proposed project would generate temporary and short-term employment, but these construction jobs are anticipated to be filled from the existing local and regional employment pool. Because the project does not include housing or commercial development or extension of roadways or other infrastructure, it would not induce substantial population growth. The proposed project would accommodate growth anticipated in the County’s General Plan. Therefore, implementing the project would not affect current and/or planned population growth patterns within Yuba County, and this issue is not discussed further in this EIR.

Impact Analysis

Impact 3.15-1: Displacement of Substantial Numbers of People or Existing Housing.

The majority of the proposed project would occur within the existing levee and maintenance zone footprint and would not affect adjacent lands and would be implemented in rural areas. Two components, the Goldfields West Levee and WPIC West Levee Extension, would include constructing new levee segments. The Goldfields West Levee is not near a residential area and would not displace any residents. The WPIC West Levee Extension would be constructed adjacent to residences on the south side of Olivehurst. However, the new levee segment would be constructed on agricultural land and no residences would be removed. WPIC West Levee Extension and Yuba River South Levee cutoff wall construction would occur as close as approximately 50-100 feet from the nearest residences. As discussed in Section 3.4, “Air Quality,” and Section 3.14, “Noise,” construction activities in such close proximity to residences would have impacts associated with potential health hazards and nuisance on these residents. These impacts would be short-term and temporary and would not displace any residents.

The proposed project would increase the level of flood protection for areas protected by the existing RD 784 urban levee system. Based on the analysis presented in Section 3.11, “Hydrology and Water Quality,” the project would not worsen flooding in areas not protected by the RD 784 urban levee system, and people in these areas would not be displaced as a result of the proposed levee improvements. Therefore, the project would not displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere, and this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

The project would have no significant impact, and therefore no residual significant impact, related to population or housing.

3.16 Transportation

This section discusses existing transportation and circulation in the project vicinity, describes applicable regulations, and analyzes potential project impacts related to short- and long-term impacts of the project on transportation and circulation.

3.16.1 Environmental Setting

The majority of the project site is located in the unincorporated portion of Yuba County, with a small segment located in the city of Linda. State highways, local roads, and transportation facilities for other available modes of travel in the project vicinity are described below.

Regional and Local Roadways

Yuba County is served by a system of State highways and county roads. The State highway system consists of both controlled-access freeways and conventional highways. The County roadway system comprises major roads, collector roads, and local residential streets. Each type of facility is described in the Yuba County 2030 General Plan (Yuba County 2011a) and summarized below.

Freeway: A multilane, divided highway with a minimum of two lanes in each direction and access provided at interchanges.

Conventional Highway: A roadway with limited access and few cross streets generally along high-volume corridors that connect cities or unincorporated communities.

Major Road: In Yuba County, a divided highway with a center median. A 110-foot-wide ROW is designated, with a 64-foot-wide pavement section in rural areas and an 86-foot-wide section (capable of providing on street parking) in urban areas. Both sections provide four through-travel lanes and a center median.

Collector Road: In urban areas, roads that have a 64-foot-wide pavement section and are capable of providing four travel lanes with parking, or five lanes without parking at intersections. In rural areas, roads that have a 40-foot-wide pavement section and are capable of providing two travel lanes and on-street parking, or three travel lanes without parking at intersections.

Local Residential Street: In Yuba County, a street constructed within a 40-foot-wide pavement section, with on-street parking. A 28-foot-wide pavement standard is used in rural areas.

Regional Roadways

Regional access to the project site is provided by SR 70 and SR 65. SR 70 is a two- and four-lane highway that extends from SR 99 in Sutter County and through Yuba County to the Butte County line. SR 70 runs north to south, linking Marysville and other northern regions with the Sacramento metropolitan area. In the project vicinity, SR 70 provides two travel lanes in each direction. SR 65 is a two- and four-lane highway that extends from SR 99 near Bakersfield to

SR 198 near Exeter. In the project vicinity, SR 65 provides two lanes in each direction. Caltrans reports that the average daily traffic volumes on SR 70 are approximately 23,000 vehicles near McGowan Parkway, approximately 0.30 mile north of the WPIC West Levee Extension and SR 65 (Caltrans 2019).

Local Roadways

Local roads provide access to the project site and adjacent properties and connect with regional roadways. Local roads provide for traffic movement within a single neighborhood or part of a neighborhood. Local roads are designed for low traffic volumes and speed (Yuba County 2011a).

Local roadway access to the northern portion of the project site is provided by SR 70, North Beale Road, Simpson Dantoni Road, Dantoni Road, Simpson Lane, and Bryden Road. Simpson Dantoni Road would be the main road used to access the Yuba River South Levee and Goldfields West levee portions of the project site. This road parallels the Yuba River South Levee and continues the western edge of the Goldfields.

Access to the southern portion of the project site is provided by SR 70, Feather River Boulevard, Road 512, Algodon Road, Plumas-Arboga Road, McGowan Parkway, Dan Avenue, Rose Avenue, and Mage Avenue. The Feather River East Levee is accessible by SR 70 to Feather River Boulevard or Algodon Road. The Bear River North Levee and Bear River Setback Levee are accessible via SR 70 to Feather River Boulevard.

The southern portion of the WPIC West Levee also is accessible from SR 70 to Feather River Boulevard. The middle and northern portions of the WPIC West Levee are accessible from SR 70 to Plumas Lake Boulevard, to River Oaks Boulevard, to Algodon Road, and finally to Plumas-Arboga Road.

The WPIC West Levee Extension is accessible from either SR 70 or SR 65 to McGowan Parkway, then from McGowan Parkway to either Dan Avenue or Rose Avenue to Mage Avenue. The ODB Ring Levee would be accessed directly from SR 70 or from Plumas-Arboga Road.

Minor local roads and farm roads would be used to access specific portions of the project site. See “Site Access, Staging, and Project-related Transportation” in Section 2.4, “Description of Proposed Project,” for additional information.

Bicycle Facilities

The Yuba County Bikeway Master Plan (Yuba County 2012) designates all bicycle lanes in Yuba County. There are no bicycle facilities within the project site, but there are bicycle facilities in close proximity to the project site. In the vicinity of the project site, Class II bicycle lanes extend along McGowan Parkway approximately 0.60 mile north of the WPIC West Levee Extension, and along River Oaks Boulevard to the intersection with Feather River Boulevard approximately 0.30 mile north of the Bear River North Levee. Additionally, a Class I bicycle lane is located immediately west of the portion of the UPRR adjacent to the WPIC West Levee

and is proposed for the north side of the Bear River. For reference, the definition for each type of bicycle facility is provided below.

- **Bike Path (Class I Bikeway):** Off-street bike paths are facilities for use exclusively by bicycles and pedestrians, with minimal cross-flow by motor vehicles. They are often located in an exclusive ROW.
- **Bike Lane (Class II Bikeway):** Bike lanes are areas within paved streets that are identified with striping, stencils, and signs for preferential (semi exclusive) bicycle use.
- **Bike Route (Class III Bikeway):** Class III bikeways are on-street routes intended to provide continuity to the bikeway system. Bike routes are designated by signs or permanent markings and are shared by motorists.

Airports

The Sutter County Airport is located approximately 3 miles west of the Yuba River South Levee, and the Yuba County Airport is located approximately 2 miles northwest of the WPIC West Levee Extension. A small airstrip, the Hammonton airstrip, is located approximately 4.3 miles east of the Goldfield West Levee. Additionally, the Beale AFB is located on the south side of Hammonton-Smartville Road, approximately 3 miles southeast of the Goldfield West Levee.

Public Transit

Public transit in Yuba County is operated by Yuba-Sutter Transit, which provides fixed-route and demand-responsive services to County residents through local, commuter, and rural bus routes. Yuba-Sutter Transit offers four local fixed routes within Yuba County, operating between 6:30 a.m. and 6:30 p.m. on weekdays, and between 8:30 a.m. to 5:50 p.m. on Saturdays. Route 6 along Hammonton-Smartville Road is the closest route to the Yuba River South Levee and Goldfields West Levee, Route 3 along Olivehurst Boulevard is the closest route to the OBD Ring levee, WPIC West Levee, and Bear River North Levee.

Railroads

The UPRR operates two freight lines in Yuba County, the Valley Line, and the UPRR/Burlington Northern Santa Fe (BNSF) Line. These lines generally running from Placer County into Marysville and then into Sutter and Butte counties. The Valley Line operates approximately 19 daily train trips through Yuba County near Linda, Olivehurst, and the Plumas Lake area. The UPRR/BNSF Line operates 48 daily trips through Yuba County, passing near Wheatland, Linda, and Olivehurst (Yuba County 2011b).

In the project vicinity, the Valley Line runs adjacent to SR 70, and the BNSF Line runs adjacent to SR 65. The Valley Line crosses the Bear River North Levee and is immediately adjacent to the southern portion of the WPIC West Levee. The WPIC West Levee Extension is located 0.25 mile west of the BNSF Line.

3.16.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws related to transportation apply to the proposed project.

State Plans, Policies, Regulations, and Laws

Senate Bill 743

SB 743, passed in 2013, requires the Office of Planning and Research to establish new CEQA guidelines that address traffic metrics under CEQA. As of July 1, 2020, this legislation replaced the Level of Service or similar measures of vehicular capacity or traffic congestion with VMT as the primary metric used to measure transportation impacts. The legislation established a new way of measuring transportation impacts for development projects in California, focusing on building projects in a way that allows more options for driving less. Criteria for analyzing transportation impacts are identified in State CEQA Guidelines Section 15064.3.

Caltrans Transportation Corridor Concept Reports

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all State-owned roadways, including those in Yuba County. Federal highway standards are implemented in California by Caltrans. The study area for transportation includes SR 20 and SR 70, which fall under Caltrans' jurisdiction.

In 2009, Caltrans completed transportation corridor concept reports or corridor system management plans for all State facilities in Yuba County (i.e., SRs 20, 49, 65, and 70). Transportation corridor concept reports and corridor system management plans identify long-range improvements for specific State freeway and highway corridors and establish the "concept," or desired, level of service for specific corridor segments. However, these reports did not necessarily consider the amount, type, and location of development within Yuba County contemplated as part of the Yuba County 2030 General Plan.

Caltrans has the discretionary authority to issue special permits for the movement of vehicles and loads exceeding the statutory limitations for vehicle size, weight, and loading that are contained in Division 15 of the 2014 California Vehicle Code. The entity requesting such a special permit must complete an application for a transportation permit.

Regional and Local Plans, Policies, Regulations, and Ordinances

Metropolitan Transportation Plan/Sustainable Communities Strategy 2035

SACOG is an association of local governments in the six-county Sacramento region; members include the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba, as well as 22 cities. SACOG provides transportation planning and funding for the region. In addition to preparing the region's long-range transportation plan, SACOG assists in planning for transit, bicycle networks, clean air, and airport land uses.

SACOG is the metropolitan planning organization responsible for developing the State- and Federally required metropolitan transportation plan (MTP) every 4 years. The Metropolitan Transportation Plan/Sustainable Communities Strategy (SACOG 2019) is the Federally mandated long-range planning document for identifying and programming roadway improvements throughout the Sacramento region. To receive Federal funding, transportation projects nominated by cities, counties, and agencies must be consistent with the MTP. The MTP was also adopted by the Yuba County Transportation Commission to serve as the County's regional transportation plan, a planning document developed by regional transportation planning agencies such as the Yuba County Transportation Commission, in cooperation with Caltrans and other stakeholders. The plans are developed to provide a clear vision of regional transportation goals, policies, objectives, and strategies. This vision must be realistic and within fiscal constraints.

Yuba County Public Facilities Fee

Yuba County has adopted a public facilities fee to mitigate impacts attributable to development in the County. The fees fund County public facilities needed as a result of development and assure that development pays its fair share for those public facilities. The program collects fees for social services, transportation, drainage, law enforcement, libraries, parks and recreation, courts and criminal justice, general government, and other needs. The traffic impact components of the County public facilities fee program cover various countywide transportation improvements. Specific transportation projects

included in the program are listed in the Development Impact Fee Justification Study (David Taussig & Associates, Inc. 2014). In addition to the countywide program, Yuba County has adopted road fees for specific plan areas.

3.16.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. A significant impact related to transportation and circulation issues would occur if the project would result in any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities
- Conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access

Yuba County has adopted an EOP (2015) that outlined procedures to follow in the event of a natural, man-made, or technological disaster. *Refer to* Section 3.10, “Hazards and Hazardous Materials,” for further discussion of impacts related to the EOP. This section evaluates potential impacts related to emergency access on SR 70, SR 65, and local roadways.

Analysis Methodology

Evaluation of the potential impacts of the proposed project on transportation is based on VMT estimates for project construction activities that were obtained from the CalEEMod model used to estimate criteria air pollutant and GHG emissions. Because there are no established standards for construction-related VMT, the evaluation of impact significance related to VMT is qualitative.

Issues Not Discussed Further

Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System.

The proposed project would not alter the compatibility of uses served by the roadway network because the project would not result in a permanent increase in vehicular traffic or other modes of transportation. Furthermore, the project would not conflict with any programs, plans, ordinances, or policies addressing the circulation system in Yuba County. Therefore, there would be no impact from the project, and this issue is not discussed further in this EIR.

Impact Analysis

Impact 3.16-1: Temporary Increase in Vehicle Miles Traveled During Construction.

O&M activities would be infrequent, similar to existing conditions, and would not increase traffic volumes in the project area. Therefore, this discussion focuses on project construction. During construction, the proposed project would generate a temporary increase in VMT from mobilization and demobilization of construction equipment, material deliveries, off hauling of construction debris, and worker vehicle trips. Access routes that would be used during project construction are indicated in “Site Access, Staging, and Project-related Transportation” of Section 2.4, “Description of Proposed Project,” and would include highways, major roads, and local roads. Construction personnel would most likely come from the local labor force in Yuba, Butte, Sutter, and Sacramento Counties and are estimated to generate approximately 55,600 VMT from total workers trips over the construction period. Additionally, during the construction period, the project would generate 34,000 VMT from import and export of materials, and 7,200 VMT from delivery of construction equipment to the site.

As indicated in **Table 2-4** of Section 2.4, “Description of Proposed Project,” the daily number of haul truck trips would range from 18 to 229, depending on the project component. In a worst-case scenario in which all project components are constructed simultaneously, this could result in a maximum of approximately 690 daily truck trips for all project components combined. In addition, on-site construction workers would travel to and from the work areas each day. Except for potential overlap in travel on regional highways, such as SR 70 and SR 65, these haul truck

trips and worker trips would be spread amongst the seven different project components, which are geographically separated and would use different local access points. Therefore, the increase in vehicle trips and miles traveled for each specific project component would be relatively modest compared to overall traffic volumes in the affected areas. Even if all components are constructed concurrently, and all construction-related traffic uses SR 70, this potential daily increase in vehicle trips associated with the proposed project would not substantially increase traffic volumes, compared to the average daily volume on SR 70 of approximately 23,000 vehicles.

No reduction in VMT from the proposed project is possible because trips would be generated for the specific purpose of completing the required construction activities. Because VMT generated from the proposed project would be limited to construction activities and therefore would be temporary, and the temporary additional VMT would not substantially increase traffic volumes, this impact is considered **less than significant**.

Mitigation measures: No mitigation is required.

Impact 3.16-2: Increased Emergency Response Times or Inadequate Emergency Access.

During construction, the proposed project would not require any road closures that would limit emergency access and lead to increased emergency response times. Project activities are anticipated to generate additional vehicle trips daily, but these would be spread among multiple access routes and would not increase traffic levels to the extent that they affect emergency response times or emergency access. During O&M, use of closure structures at Dantoni Road and Plumas-Arboga Road would require road closures at these points. However, this would only occur in emergency situations associated with high-flow events, when the routes are not safe to use. Additionally, other nearby roadways would remain available for emergency access.

O&M activities would be infrequent and similar to those conducted under existing conditions and would not affect emergency access or response. Additionally, the temporary and minor construction-related traffic increase would not degrade traffic operations on the surrounding transportation network to an extent that would affect emergency vehicle response times or access. Therefore, the proposed project would not increase emergency response times or result in inadequate emergency access. This impact would be **less than significant**.

Mitigation measures: No mitigation is required.

Impact 3.16-3: Increase Hazards Due to Geometric Design Features or Incompatible Uses

The WPIC West Levee Extension would include ramps over the levee to provide access for farm equipment at existing access locations. Similar to existing ramps on RD 784 levees that provide access to agricultural areas, these ramps would be designed to accommodate safe travel by farm equipment and would not include dangerous slopes or curves. Therefore, this impact would be **less than significant**.

Mitigation measures: No mitigation is required.

Residual Significant Impacts

Mitigation measures that would reduce potentially significant transportation impacts to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant impacts related to transportation.

3.17 Tribal Cultural Resources

This section describes the TCR setting; summarizes applicable regulations; analyzes potential impacts of the project on TCRs; and identifies mitigation measures to reduce potentially significant impacts to a less-than-significant level.

3.17.1 Environmental Setting

Please *refer to* the “Ethnographic Setting” in Section 3.6, “Cultural Resources,” for a description of Native American history in the project region.

3.17.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

No Federal plans, policies, regulations, or laws specifically related to TCRs apply to the project.

State Plans, Policies, Regulations, and Laws

AB 52, effective on July 1, 2015, amends CEQA and adds new sections relating to Native American consultation and certain types of cultural resources, TCRs. TCRs are either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that is either on or eligible for inclusion in the CRHR or a local historic register; or (2) the lead agency, at its discretion and supported by substantial evidence, chooses to treat the resource as a TCR. Additionally, a cultural landscape may also qualify as a TCR if it meets the criteria to be eligible for inclusion in the CRHR and is geographically defined in terms of the size and scope of the landscape. Other historical resources (as described in PRC 21084.1), a unique archaeological resource (as defined in PRC 21083.2[g]), or non-unique archaeological resources (as described in PRC 21083.2[h]), may also be TCRs if they conform to the criteria to be eligible for inclusion in the CRHR.

AB 52 provides that a project with an effect that may cause a substantial adverse change in the significance of a TCR may have a significant effect on the environment. AB 52 requires the lead agency to begin consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the project if the tribe requests the lead agency, in writing, to be informed by the lead agency through formal notification of projects that are proposed in that geographic area and the tribe subsequently requests consultation. PRC Section 21084.3 states that “public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.” AB 52 explicitly recognizes:

...that California Native American tribes may have expertise with regard to their tribal history and practices, which concern the tribal cultural resources with which they are traditionally and culturally affiliated. Because CEQA calls for a sufficient degree of analysis, tribal knowledge about the land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources.

AB 52 therefore requires meaningful consultation with culturally and geographically affiliated tribes to identify TCRs and to develop avoidance or mitigation as appropriate.

3.17.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The significance criteria used to evaluate the project impacts are based on Appendix G of the State CEQA Guidelines. A significant impact would occur if the proposed project would:

- Result in a substantially adverse change in the significance of a TCR (as defined in PRC Section 21074 and above) when compared against existing conditions

Analysis Methodology

Native American Consultation and Coordination

In compliance with AB 52 (PRC Section 21080.3.1), letters were sent to UAIC and Enterprise via certified mail on June 24, 2021, inviting the tribes to consult on the project and provide information of TCRs to inform the impact analysis. UAIC has previously requested to be notified regarding projects within their traditional geographic area of cultural affiliation, in accordance with AB 52 (PRC 21080.3.1). Enterprise Rancheria was also notified because the Tribe has an established affiliation with the geographic area and has worked with TRLIA on many previous projects.

Enterprise responded to TRLIA's notification and indicated they are culturally affiliated with the project area and requested government-to-government consultation. TRLIA acknowledged this request and provided updated project information when portions of the Feather River East Levee were added to the project. Enterprise has not provided information regarding TCRs of concern to them, but consultation with Enterprise is ongoing.

UAIC responded to TRLIA's notification and requested consultation under AB 52. A virtual meeting of TRLIA, UAIC, and GEI representatives was held on August 31, 2021. TRLIA subsequently provided updated project information when portions of the Feather River East Levee were added to the project. On October 26 and November 4, 2021, UAIC provided information on TCRs that overlap or are near the project site. Consultation with UAIC is ongoing.

Impact 3.17-1: Substantial Adverse Change in the Significance of a Tribal Cultural Resource.

TCRs mapped by UAIC overlap portions of the Feather River East Levee, Bear River Setback Levee, WPIC West Levee, and Yuba River South Levee work areas. Potential to impact these known TCRs is very low, because project activities in the relevant areas would be limited to the existing levees and associated maintenance zones that were disturbed during previous TRLIA projects. No TCRs were identified in areas where new levee embankment would be constructed. Similarly, potential to encounter previously unidentified TCRs on the project site is low because

most of the site is limited to existing levees and associated maintenance zones that were disturbed during previous TRLIA projects. However, such resources may exist in portions of the project site that have not been disturbed by previous levee improvements or mining activities, particularly along the WPIC West Levee Extension alignment. If such resources are present in areas subject to project-related ground disturbance, they could be destroyed or otherwise substantially altered by project implementation. This would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measures 3.6-1a and 3.6-1b would address this impact.

Mitigation Measure 3.6-1a: Conduct Additional Cultural Resources Inventory.

Please *refer to* Mitigation Measure 3.6-1a in Impact 3.6-1 of Section 3.6, “Cultural Resources,” for full text of this mitigation measure.

Mitigation Measure 3.6-1b: Implement Construction-Related Inadvertent Discovery Plan Discovery Plan and Conduct Cultural Resource Awareness and Sensitivity Training.

Please *refer to* Mitigation Measure 3.6-1b in Impact 3.6-1 of Section 3.6, “Cultural Resources,” for full text of this mitigation measure.

Significance after Mitigation: Implementing Mitigation Measures 3.6-1a and 3.6-1b would reduce this impact because TRLIA will consult with interested Native American Tribes regarding TCRs and any inadvertent discovery of archaeological resources or human remains would be coordinated with interested Native American Tribes and addressed as proscribed by State law. Therefore, this impact would be **less than significant with mitigation incorporated**.

Residual Significant Impacts

Mitigation measures that would reduce potentially significant impacts to TCRs to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant impacts related to TCRs.

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3.18 Utilities and Service Systems

This section characterizes the existing utilities and service systems on and near the project site and evaluates impacts to utilities and service services that would result from implementing the project.

3.18.1 Environmental Setting

Water Supply

YWA manages and regulates surface water supplies in Yuba County. The Yuba River is the primary source of water in the County. YWA provides approximately 260,000-acre feet of wholesale water supplies to its eight member units, which include Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Dry Creek Mutual Water Company, Hallwood Irrigation District, Ramirez Water District, South Yuba Water District, and Wheatland Water District. These water providers supply the County's agricultural and municipal water. (Yuba County 2011a.)

Stormwater Drainage

Much of the rainfall from winter storms in the project vicinity percolates through the ground as groundwater recharge. To control stormwater runoff, Yuba County operates and maintains a drainage system consisting of roads with drainage systems, catch basins, water basins, detention basins (such as Olivehurst Detention Basin), constructed wetlands, artificial channels, curbs, gutters, ditches, sumps, pumping stations, storm drain inlets, and storm drains, which provide stormwater drainage to unincorporated county lands (Yuba County 2011b).

Wastewater

The project site is not located within the boundary of a State-regulated wastewater treatment facility (Yuba County 2011a). Properties not served by a public wastewater provider generally use private septic systems.

Solid Waste

Solid waste in Yuba County is disposed of at the Recology Ostrom Road Landfill located in Wheatland (CalRecycle 2019). The facility consists of 261 acres and has a remaining capacity of 39,223,000 cubic yards. The site is permitted to accept municipal and industrial solid waste, agricultural waste, ash, wastewater treatment sludge (biosolids), construction and demolition debris, green waste and food waste, contaminated soils, tires, and nonfriable asbestos (CalRecycle 2019).

Electrical and Other Service Lines

PG&E provides electricity and natural gas to Yuba County. Local water agencies have hydroelectric facilities that generate electricity, but all electricity generated at these facilities is delivered to PG&E (Yuba County 2009). Overhead power lines on the project site occur along

the west side of the Goldfields and the WPIC West Levee Extension alignment. Underground lines may also occur on the project site but are not anticipated to be affected.

3.18.2 Regulatory Setting

No Federal, State, regional, or local plans, policies, regulations, or laws related to utilities and public services apply to the project site.

3.18.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

Significance criteria are based on Appendix G of the State CEQA Guidelines. Implementing the project would have a significant impact on utilities and service systems if it would result in any of the following:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years
- 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
- 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
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals
- Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste

Analysis Methodology

Evaluation of the potential impacts of the proposed project on utilities and service systems was based on a review of planning documents pertaining to the project area, particularly the Yuba County 2030 General Plan (Yuba County 2011a) and the Final Yuba County 2030 General Plan Environmental Impact Report (Yuba County 2011b).

Issues Not Discussed Further

Require the Construction or Expansion of New Utilities or Wastewater Treatment Facilities. The proposed project involves levee improvements to protect against potential future

flooding events. Because these improvements do not involve housing or commercial development, they would not result in a need for additional utilities or public services. Therefore, wastewater, water supply entitlements, electricity and natural gas supply, fire protection, police protection, and schools are not discussed further in this EIR.

Have Sufficient Water Supply. During construction, the proposed project would transport water to the site to spray down construction areas for dust control; however, no long-term water supply would be needed for the proposed project. Therefore, this issue is not discussed further in this EIR.

Impact Analysis

Impact 3.18-1: Relocation of Existing Utility Infrastructure.

As discussed in Chapter 2, “Project Description,” the relocation of existing utilities within the project construction areas may be required in the Goldfields West Levee and WPIC West Levee Extension portions of the project site. Power poles located along the west side of the Goldfields are anticipated to require relocation to accommodate the new levee footprint, and the WPIC West Levee Extension could require local utility line relocation.

TRLIA would coordinate with the utility owners/providers regarding utility relocation in advance of construction to identify new locations and evaluate potential needs for temporary service bypasses or shutdowns. Utility relocation would be conducted either in advance of or concurrent with project construction activities.

Although steps would be taken to minimize potential impacts to utilities, construction of the Goldfields West Levee and WPIC West Levee Extension could inadvertently damage utility equipment and facilities and result in service interruptions. In addition, unidentified underground utilities in other portions of the project area where ground disturbance would occur beyond the existing levee footprint could result in inadvertent utility damage. Construction personnel also could be harmed if they come in contact with live electrical lines. Therefore, this temporary impact would be **potentially significant**.

Mitigation Measures: Mitigation Measure 3.18-1 has been identified to address this impact.

Mitigation Measure 3.18-1: Verify Utility Locations, Coordinate with Affected Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

TRLIA and its construction contractor will implement the following measures before and during construction to avoid and minimize potential damage to utilities service disruptions, and safety risks:

- Coordinate with applicable utility and service providers to implement orderly utility relocation.

- Provide notification of any potential service interruptions to the appropriate agencies.
- Verify through field surveys and Underground Service Alert services the locations of buried utilities on the project site, including natural gas and petroleum pipelines. Any buried utility lines will be clearly marked in the area of construction (e.g., in the field) and on the construction specifications before any earth-moving activities occur.
- Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan will identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan will include worker education training in response to such situations.
- Stage utility relocations prior to and during construction to minimize service interruptions.

Timing: Before and during construction activities.

Responsibility: TRLIA and its construction contractor(s).

Significance after Mitigation: Implementing Mitigation Measure 3.18-1 would reduce the potentially significant impact associated with utilities because TRLIA would coordinate with affected utility service providers to minimize utility interruptions and inadvertent damage to unknown buried utilities to the maximum extent feasible, prepare and implement a response plan to address service interruptions, and relocate and install disturbed utilities comparable to existing conditions. Therefore, this impact would be **less than significant with mitigation incorporated**.

Impact 3.18-2: Generation of Solid Waste Potentially Exceeding Permitted Capacity of Local Landfills.

Construction of the proposed project would require minimal demolition that would result in solid waste requiring disposal. Small structures, fences, vegetation, and other features along the Goldfields West Levee alignment would be demolished and removed, and the WPIC West Levee Extension would require vegetation removal and may require culvert and fencing removal. Additionally, if the Feather River East Levee cutoff wall option is selected, the existing relief well system may be demolished and removed. Fill excavated from the project site is anticipated to be reused in project construction and very little, if any, export of unsuitable excavated material would be required.

Debris generated during project construction would be disposed of at permitted facilities, such as the Recology Ostrom Road landfill. Because this facility has an expected closure date of 2066 (Recology 2019), it is anticipated that it could accommodate the relatively small amount of solid waste that could be generated. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Residual Significant Impacts

Mitigation measures that would reduce potentially significant impacts associated with utilities and service systems to a less-than-significant level have been identified and would be implemented. Therefore, there would be no residual significant impacts related to these issues.

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Chapter 4. Other CEQA-Required Sections

4.1 Growth-inducing Impacts

State CEQA Guidelines Section 15126.2[d]) requires an examination of the direct and indirect impacts of a proposed project, including the potential of the project to induce growth leading to changes in land use patterns, population densities, and related impacts on environmental resources. Specifically, CEQA states that the EIR shall:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involves construction of new housing.

Indirect growth inducement would result, for instance, if implementing a project would result in:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises)
- substantial short-term employment opportunities (e.g., construction employment) that indirectly would stimulate the need for additional housing and services to support the new temporary employment demand
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area)

Local land use decisions are within the jurisdiction of Yuba County, which has an adopted general plan consistent with State law. The *Yuba County 2030 General Plan* (Yuba County 2011) provides the overall framework for growth and development in the County. The project site does not include any developed uses, and the land on which construction would occur is not designated for developed use by the County. The 2030 General Plan introduces the concept of a “Valley Growth Boundary.” The intent of the Valley Growth Boundary is, among other objectives, to reduce the overall footprint of future urban development and reduce potential

conflicts at the urban-rural edge as part of the County's overall strategy for agricultural and open space preservation. The Valley Growth Boundary sets the long-term spatial limits of urban development in the valley portion of the County to accommodate most development needs between present and build out of the 2030 General Plan. Planned development within the TRLIA assessment districts, which includes the project site, is located within the County's Valley Growth Boundary; therefore, the proposed project would accommodate growth anticipated in the County's General Plan. Consequently, implementation of the proposed project would not affect current and/or planned population growth patterns within Yuba County.

The completed TRLIA projects provided the area protected by the RD 784 urban levee system with 200-year flood protection. Decisions regarding residential, commercial, and other development in the area protected by the levees have been made, and the environmental effects of these actions have been previously evaluated and disclosed. Implementing the proposed project, which would provide a 500-year level of flood protection, would not directly induce growth and would have no impact on regional population increases because the proposed project components, separately or collectively, would not remove any obstacles to growth.

The proposed project would generate short-term construction employment but would not require a significant labor pool. Therefore, the local region's labor population is anticipated to be able to meet this need and no change in the local population base would be anticipated. Furthermore, the project would not involve constructing businesses or extending roadways or other infrastructure. Consequently, the project would not directly increase the local population or indirectly induce growth leading to changes in land use patterns and population densities and related impacts on environmental resources.

4.2 Significant and Unavoidable Environmental Impacts

Section 15216.2(c) of the State CEQA Guidelines requires an EIR to include a discussion of any significant environmental impacts that cannot be avoided if the project is implemented.

Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures," of this EIR provides a detailed analysis of all significant and potentially significant environmental impacts related to implementing the proposed project; identifies feasible mitigation measures, where available and practicable, that could avoid or reduce these significant and potentially significant impacts; and presents a determination whether these mitigation measures would fully reduce these impacts to less-than-significant levels. In addition, significant cumulative impacts resulting from the combined effects of the project and past, present, and reasonably foreseeable related projects are discussed in Chapter 5, "Cumulative Impacts." If a specific impact cannot be fully reduced to a less-than-significant level with implementation of all feasible mitigation, it is considered a significant and unavoidable adverse impact.

Significant and unavoidable impacts of the proposed project are:

- **Impact 3.2-1, “Degradation of Visual Character and Quality.”** The rationale for this conclusion and the lack of feasible mitigation measures to adequately reduce the impact to a less-than-significant level are described in Section 3.2, “Aesthetics.”
- **Impact 3.3-1, “Farmland Conversion.”** The rationale for this conclusion and the lack of feasible mitigation measures to adequately reduce the impact to a less-than-significant level are described in Section 3.3, “Agriculture and Forestry Resources.”
- **Impact 3.13-1, “Substantial Increase in Ambient Noise Levels.”** The rationale for this conclusion and the lack of feasible mitigation measures to adequately reduce the impact to a less-than-significant level are described in Section 3.13, “Noise.”

4.3 Significant Irreversible Environmental Changes

The State CEQA Guidelines (Section 15126.2[d]) require a discussion of the significant irreversible environmental changes that a project would cause. The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled, or those that are consumed or reduced to unrecoverable forms. Implementing the project would result in the irreversible and irretrievable commitment of energy and material resources during project construction and O&M, including:

- Construction materials, including such resources as soil and rock
- Land area committed to new/expanded project facilities
- Energy expended in the form of electricity, gasoline, diesel fuel, and oil for construction equipment and transportation vehicles that would be needed for project construction and O&M

The use of these nonrenewable resources is expected to account for only a small portion of the region’s resources and would not affect the availability of these resources for other needs in the region. Project construction activities would not result in inefficient use of energy or natural resources.

4.4 Impacts of Mitigation Measures

State CEQA Section 15126.4(a)(1)(D) Guidelines require a discussion of any significant effects that may be caused by mitigation measures, although the discussion shall be in less detail than the discussion of significant effects of the project as proposed.

Mitigation measures proposed in this EIR are intended to mitigate significant and potentially significant impacts that could occur as a result of implementing the proposed project. Some mitigation measures could result in additional environmental impacts. However, the mitigation measures proposed in this EIR are typically standard mitigation measures that have been

implemented for similar projects throughout California with success and without any known or identified related significant impacts. None of the mitigation measures proposed herein include any substantial, adverse impacts on the physical environment. Therefore, implementing the mitigation measures proposed in this EIR would have minimal environmental impacts and would not result in significant or potentially significant impacts.

Chapter 5. Cumulative Impacts

5.1 Introduction to Cumulative Impact Analysis

As defined in State CEQA Guidelines Section 15355, a cumulative impact is an environmental impact that is created as a result of the combination of implementing the project together with other projects causing related impacts. CEQA requires that an EIR discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable (State CEQA Guidelines Section 15130[a]). "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects (State CEQA Guidelines Section 15065[a][3]). If an incremental effect is not cumulatively considerable, then the lead agency does not need to consider that effect significant and must briefly describe the reason why (State CEQA Guidelines Section 15130[a]).

State CEQA Guidelines Section 15130(b) states that the discussion of cumulative impacts need not provide as much detail as the discussion of the effects attributable to the project. The level of detail should be guided by what is practical and reasonable. The following elements are necessary for an adequate discussion of significant cumulative impacts (State CEQA Guidelines Section 15130[b]):

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the lead agency; or a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact
- A defined geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limits identified
- A summary of expected environmental effects that might be produced by those projects with specific reference to additional information stating where that information is available
- A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant or potentially significant cumulative effects

This cumulative impact analysis includes the following four components:

1. Description of the geographic scope of potential cumulative impacts (Section 5.1.1, "Geographic Scope of Cumulative Impacts")

2. Context for the cumulative impact analysis, including a broad overview of the regional area; this establishes the cumulative context upon which the project would interact with past, present, and probable future projects (Section 5.1.2, “Context for Cumulative Evaluation”)
3. Summary of past, present, and probable future (reasonably foreseeable) projects included in the cumulative analysis (Section 5.1.3, “Projects Considered in Cumulative Impact Analysis”)
4. Cumulative impact analyses (Section 5.2, “Cumulative Impact Analysis by Topic Area”)

5.1.1 Geographic Scope of Cumulative Impact Analysis

State CEQA Guidelines indicate that lead agencies “should define the geographic scope of the area affected by the cumulative effect” (CCR Section 15130[b][3]). Although the geographic scope of the area affected by cumulative impact varies by topic, it consists of the following two geographic areas for this EIR:

- Proposed Project Site—All portions of the specific proposed project site where all proposed project components would be constructed and maintained. The project site is illustrated in **Figure 2-1**, “Project Location,” and includes portions of the Yuba River South Levee (approximately 2 miles), Feather River East Levee (approximately 1.25 miles), Bear River Setback Levee and Bear River North Levee (approximately 1 mile), WPIC West Levee (approximately 5.9 miles), and ODB Ring Levee (approximately 300 feet). These individual components of the project site are shown in **Figures 2-11** through **2-14c**.
- Project Vicinity and Region—generally the entire project vicinity shown in **Figure 2-1**, “Project Location,” and portions of the larger region which some issues would affect when considered in a cumulative context, such as air quality, hydraulic impacts, and climate change (*see* topic-specific geographic areas below). This area includes all of the levee segments included above for the “Proposed Project Site”; all previous and proposed TRLIA projects involving the Yuba River, Feather River, Bear River, WPIC, and Goldfields; areas downstream of New Bullards Bar Dam and Reservoir on the Yuba River, Oroville Dam and Lake Oroville on the Feather River, and Camp Far West Dam and Reservoir on the Bear River; previous and proposed YWA projects involving the Yuba River; and the Sacramento River below the Feather River confluence to the extent that project-related hydrologic changes extend downstream.

5.1.2 Context for Cumulative Evaluation

The proposed project would improve the RD 784 urban levee system that protects the area bordered by the Yuba River, Feather River, Bear River, and WPIC. Project impacts include temporary, short-term construction impacts, with longer-term or permanent impacts primarily associated with the two areas where new levee segments would be constructed. Changes to the existing levee system would generally have minor environmental impacts because impacts would be confined to the existing levee and maintenance area footprints, with the exception of staging areas and truck haul routes.

The geographic scope of the area affected by the project for each of the topics addressed in the EIR would include the following:

- Aesthetics – local (project site) and immediate vicinity
- Agricultural and Forestry Resources – regional (Yuba County)
- Air Quality – regional (air basin, which includes Yuba and Sutter counties)
- Biological Resources – regional (Yuba County)
- Cultural Resources (archaeological and historical) and Tribal Cultural Resources – local (project site)
- Energy – regional (Yuba County)
- Geology, Soils, and Paleontological Resources – local (project site)
- Greenhouse Gas Emissions – regional (air basin, which includes Yuba and Sutter counties)
- Hazards and Hazardous Materials – local (project site) and immediate vicinity
- Hydrology and Water Quality – local (drainage systems affected on and downstream of the project site) and regional (Yuba, Feather, and Bear rivers; WPIC and Goldfields; and Sacramento River downstream of Feather River confluence)
- Land Use and Planning – local (project site) and immediate vicinity
- Mineral Resources – local (project site)
- Noise – local (immediate vicinity of the project site and along access routes during construction activities) and regional (transport network for truck haul routes in Yuba and Sacramento counties during construction)
- Population and Housing – local (project site) and regional (Yuba County)
- Transportation – local (roadways in immediate vicinity of the project site and along access routes during construction activities) and regional (transportation network in Yuba and Sacramento counties for truck haul routes during construction)
- Utilities and Service Systems – local (project site) and immediate vicinity

The proposed project would improve the level of flood protection provided by the RD 784 urban levee system to a 500-year level. The land protected by these improvements is predicted to experience steady growth as described in Section 3.15, “Population and Housing,” whether the proposed project is constructed or not. In particular, the approved Plumas Lake Specific Plan is considered a key component of the land inventory needed to meet regional housing allocations with capacity to accommodate over 10,000 dwelling units (Yuba County 2021). The conversion of open land to developed use has the potential to alter drainage patterns, increase sedimentation, and remove upland habitats that in combination with impacts of past, present, and reasonably foreseeable future projects may create cumulative impacts.

5.1.3 Projects Considered in Cumulative Analysis

The following discussion of related actions, programs, and projects used for this cumulative analysis includes related past, present, and probable flood protection projects in and upstream of the project area, including new levees, levee improvements, and changes in reservoir operations; mining and reclamation activities within the Goldfields; ecological and fisheries restoration activities in the project area; and land development occurring on the floodplain within the boundaries of the RD 784 and TRLIA assessment districts. The list of related projects discussed below is not intended to be an all-inclusive list of projects in the region, but rather a list of the larger actions, programs, and projects approved or planned in the region that may affect the same resources as the proposed project.

TRLIA Projects

As discussed in Chapter 1, “Introduction,” TRLIA, in partnership with Yuba County and RD 784, has implemented a comprehensive program of levee improvements to provide protection from the 200-year flood event to properties in southwest Yuba County. **Table 5-1** summarizes the characteristics, including the locations of the levee improvements and the completion dates, of the TRLIA levee improvements along the Yuba, Feather, and Bear rivers and the WPIC. It also summarizes a habitat restoration project implemented by TRLIA and identifies the environmental documents associated with all of the projects.

Yuba Water Agency and Yuba County Water Agency Projects

YWA and its predecessor Yuba County Water Agency (YCWA) have been involved in flood protection projects both directly and indirectly. Past and present water and debris storage projects have affected water storage and downstream releases into the lower Yuba River, and New Bullards Bar Dam and Reservoir particularly have a major effect on flood water storage.

New Bullards Bar Dam Atmospheric River Control Spillway

This probable future project proposes construction and operation of a new second spillway at New Bullards Bar Dam to increase operational flexibility for managing outflow and improve flood management in the Yuba and Feather River systems. The ARC spillway would have a discharge capacity of approximately 35,000 cfs and would operate conjunctively with the primary spillway and New Colgate powerhouse to meet overall target releases from the dam. The project includes constructing the ARC spillway and related facilities, relocating the dam overlook observation site at the left abutment of the dam, relocating a small segment of Marysville Road over the ARC spillway, developing a permanent soil and rock disposal area, and operating and maintaining the ARC spillway and related facilities pursuant to the current flood control manual and other applicable rules and guidelines. Construction is anticipated to occur over approximately 4 years, beginning in 2024. The new spillway would allow for releases at a lower reservoir water elevation than can currently occur from the existing spillway. Releases would be made in anticipation of large storms to provide increased capacity in the reservoir during high-precipitation events and may also be used during smaller events.

Table 5-1. Summary of Related Three Rivers Levee Improvement Authority Projects

Project Name	Location	Improvements	Project Completion Date	Associated Environmental Documents
Yuba River Levee Repair Project	Phase 1: Upper Yuba River levee between State Route 70 and the Southern Pacific Railroad track	Construction of a 2,200-foot-long slurry cutoff wall on the left bank of the Yuba River	2004	Initial Study for the Yuba River Levee Repair Project (TRLIA 2004a)
	Phase 2: Upper Yuba River between the Southern Pacific Railroad and Union Pacific Railroad tracks	Construction of a 90- to 300-foot-wide seepage berm on the left bank of the Yuba River	2005	Initial Study for the Yuba River Levee Repair Project (TRLIA 2004a)
	Phase 4: Upper Yuba River between the Union Pacific Railroad track and Simpson Lane	Construction of a 6,850-foot-long slurry wall and installation of a seepage berm in the left bank levee of the Upper Yuba River	2006	Yuba River Levee Repair Project (Phase 4) Initial Study (TRLIA 2006a)
Upper Yuba Levee Improvement Project	State Route 70 to the Union Pacific Railroad track	Reshaping of 3,050 feet of levee slope	2009	Yuba River Levee Repair Project (Phase 4) Initial Study (TRLIA 2006a)
	Simpson Lane to the Goldfields	Construction of slurry walls and seepage berms	2011	Final Initial Study/Mitigated Negative Declaration for the Upper Yuba Levee Improvement Project (Simpson Lane to the Goldfields) (TRLIA 2010)
Bear River and Western Pacific Interceptor Canal Levee Improvement Project	Confluence of the Bear River and WPIC	Construction of one 1,000-foot slurry wall and one 500-foot slurry wall	2005	Bear River and Western Pacific Interceptor Canal Levee Improvement Project Final Environmental Impact Report (TRLIA 2004b)
Western Pacific Interceptor Canal 200-Year Standard Project	Southern Yuba County, south of the town of Olivehurst and immediately east of State Route 70	Levee remediation measures for the WPIC West Levee, including cutoff walls, drained berms, a stability berm, and landside fill	2017	Final IS/MND: Western Pacific Interceptor Canal 200-Year Standard Project (TRLIA 2015a)
Feather-Bear River Setback Levee	Confluence of the Feather and Bear Rivers	Setback levee foundation, including construction of a cutoff slurry wall, placement of relief wells, and construction of two detention basins north of the setback levee alignment	2005	Final Environmental Impact Report for the Feather-Bear Rivers Levee Setback Project (TRLIA 2004c)

Table 5-1. Summary of Related Three Rivers Levee Improvement Authority Projects

Project Name	Location	Improvements	Project Completion Date	Associated Environmental Documents
	Confluence of the Feather and Bear Rivers	Construction of approximately 9,000-foot-long setback levee, replacement of portions of the existing Bear River and Feather River levees at their confluence, and removal of the old levees	2006	Final Environmental Impact Report for the Feather-Bear Rivers Levee Setback Project (TRLIA 2004c)
Feather River Levee Repair Project	Segment 1: Bear River to approximately Star Bend	Construction of cutoff walls, stability berms, relief wells and monitoring wells	2009	Final Environmental Impact Report for the Feather-Bear Rivers Levee Setback Project (TRLIA 2004c)
	Segment 2: Star Bend to approximately Shanghai Bend	Construction of the Feather River setback levee	2010	Final Environmental Impact Report for the Feather River Levee Setback Project (TRLIA 2006b)
	Segment 3: Shanghai Bend to the Yuba River at State Route 70	Construction of cutoff walls, stability berms, relief wells, and monitoring wells	2010	Final Environmental Impact Report for the Feather-Bear Rivers Levee Setback Project (TRLIA 2004c)
Feather River Erosion Site 2 Repair Project	Confluence of the Feather and Yuba Rivers from State Route 70 to Shanghai Bend in an area known as "State Cut"	Construction of a rock slope protection layer and toe trench, revegetation of the levee slope, and regrading and resurfacing of a maintenance road along the levee toe	2009	Initial Study/Proposed Mitigated Negative Declaration for Feather River Erosion Site 2 Repair Project (TRLIA 2009)
Feather River Setback Conservation Bank Project	East Bank Feather River between Shanghai Bend and Star Bend	Creates 500 acres of advance mitigation credits for the State Plan of Flood Control	2020	Final Initial Study/Mitigated Negative Declaration: Feather River Setback Conservation Bank Project (TRLIA 2016)
Yuba Goldfields 100-Year Flood Protection Project	Yuba Goldfields	Construction of a 5-mile-long embankment in the Goldfields to intercept and hold breach flows to allow flood peaks to pass	2015	Final Initial Study/Mitigated Negative Declaration: Yuba Goldfields 100-Year Flood Protection Project (TRLIA 2014)

Table 5-1. Summary of Related Three Rivers Levee Improvement Authority Projects

Project Name	Location	Improvements	Project Completion Date	Associated Environmental Documents
Yuba Goldfields 200-Year Flood Protection Project	Yuba Goldfields or south of Yuba Goldfields	Construction of a 9-mile-long embankment in the Goldfields or 3.5-mile-long levee south of the Goldfields	2021	Final Environmental Impact Report: Yuba Goldfields 200-Year Flood Protection Project (TRLIA 2015b); Final Supplemental Environmental Impact Report Yuba Goldfields 200-Year Flood Protection Project (TRLIA 2018)
Yuba River North Training Wall Project – Phase 1	Yuba River, approximately 6 miles northeast of Marysville and from 0.5 to 2.5 miles downstream of Daguerre Point Dam.	Reshape a 2-mile-long segment of the Yuba River North Training Wall, adjacent to the Teichert Aggregates Hallwood Facility	2021	Initial Study/Proposed Mitigated Negative Declaration: Yuba River North Training Wall Project (TRLIA 2021)
Yuba River North Training Wall Project – Phase 2	Yuba River, approximately 6 miles northeast of Marysville and 0.5 mile downstream of Daguerre Point Dam.	Construction of a 1,000-foot-long embankment to connect the upstream end of the North Training Wall to high ground	Future project	Initial Study/Proposed Mitigated Negative Declaration expected early 2022

Notes: SR = State Route, USACE = U.S. Army Corps of Engineers, WPIC = Western Pacific Interceptor Canal

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Other Flood Protection Projects

Bear River Setback Levee Project

RD 817 is proposing to construct an approximately 2,800-foot setback levee behind a portion of the existing Bear River North Levee identified by DWR as a critical erosion site and to buttress approximately 8,500 feet of the existing levee farther downstream (Stillwater and MBK 2021). The then obsolete portion of the existing levee would be degraded, and the material would be used to accomplish the downstream buttress reinforcements. This project is intended to reduce flood risk, increase channel capacity, decrease erosion susceptibility, enhance habitat, and improve maintenance access for inspections and operations during high-water events. The project is expected to be constructed in 2022.

DWR and USACE Feather and Yuba River Projects

DWR constructed and operates Oroville Dam and Lake Oroville on the Feather River. USACE manages the flood control storage portion of Oroville Reservoir and New Bullards Bar Reservoir through its respective water control manuals for both reservoirs. Both projects are considered related to the proposed project because they store and release flows in anticipation of, and during, flood flows down the Feather and Yuba rivers.

Other Ecosystem Restoration Projects

Yuba River Ecosystem Restoration Project

In June 2015, USACE signed a cost-sharing agreement with YCWA to pursue the Yuba River Ecosystem Restoration Feasibility Study. The study identifies problems and opportunities associated with ecosystem degradation in the Yuba River watershed, develops and evaluates measures to solve identified problems, formulates and compares alternatives for ecosystem restoration, and identifies a Tentatively Selected Plan for implementation. The plan describes approximately 179 acres of habitat restoration along the lower Yuba River, including approximately 43 acres of aquatic habitat including side channels, backwater areas, and bank scallops and approximately 136 acres of riparian habitat. Restoration is planned at several locations between the SR 20 Bridge over the Yuba River and approximately 3 miles downstream of the Goldfields. A Final Interim Feasibility Study and Environmental Assessment/Finding of No Significant Impact was issued in January 2019 (YWA and USACE 2019). Project implementation is scheduled to begin in 2022.

Hallwood Side Channel and Floodplain Restoration Project

The Hallwood Side Channel and Floodplain Restoration Project is designed to restore and enhance ecosystem processes, with a primary focus on improving productive juvenile salmonid rearing habitat for fall and spring-run Chinook Salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead (*Oncorhynchus mykiss*) in the Yuba River. Habitat enhancement includes topographic modification, riparian planting, and installing large woody materials just upstream of the Goldfields. Topographic modification involves removing portions of an existing training wall, lowering floodplain elevations, and enhancing a network of perennially and seasonally

inundated side channels. Restoring side channels and removing the training wall would reduce flood risk by lowering water surface elevations and velocities in the river during flood events. Phase 1 of the restoration project was completed in November 2020 and Phase 2 of the project was completed in November 2021. Phase 3 is scheduled for construction in 2022.

Surface Mining

The Goldfields have been subject to surface mining for over 100 years. Multiple entities with vested rights to extract sand, gravel, and gold have and continue to actively operate in the Goldfields. The primary current operator is Teichert Aggregates. Surface mining in the Goldfields typically involves removing material by clamshell dredge, excavators, draglines, and other equipment. After material has been removed, it is transported to a processing plant for sorting by type and size. Some materials are crushed or washed, and all sorted material is stockpiled for use in the manufacturing or sale of construction aggregates, road base, or as precious metals. Wash water and silts are pumped into settling ponds and tailings are piled onsite.

Development Projects

Approximately 29,000 acres of land in unincorporated southwest Yuba County benefit from the RD 784 urban levee system. Development projects considered in this cumulative impact analysis (**Table 5-2**) include the North Arboga Study Area, Plumas Lake Specific Plan, Country Club Estates, and Bear River Projects. Approximately 25,350 dwelling units and 864 acres of commercial and office development are permitted with buildout of these projects as approved.

Table 5-2. Related Development Projects within the RD 784 and TRLIA Assessment Districts

Project Name	Location	Status	Total Area (acres)	Total Dwelling Units	Commercial/Office Area (acres)
East Linda Specific Plan ¹	South of the Linda levee, east of Linda, west of Griffith Avenue, north of Erle Road	Specific Plan rescinded as part of 2015 Development Code Update	1,760	6,000	114
Olivehurst Avenue Specific Plan ¹	South of Third Avenue, south and southwest of SR 70, east of Yuba County Airport, north of Ninth Avenue	Specific Plan rescinded as part of 2015 Development Code Update	55	–	20
North Arboga Study Area	West of SR 70 near its intersection with SR 65, north of the Plumas Lake Specific Plan area	Approved in 1992; approximately 690 dwelling units have been constructed	1,300	2,500	225
Plumas Lake Specific Plan	East of Feather River Boulevard and west of State Route 70, continuing south to the Yuba-Sutter County	Approved in 1992; approximately 2,500 dwelling units have been constructed	5,263	13,027	474

Table 5-2. Related Development Projects within the RD 784 and TRLIA Assessment Districts

Project Name	Location	Status	Total Area (acres)	Total Dwelling Units	Commercial/Office Area (acres)
Country Club Estates	South of Country Club Avenue, east of the Feather River, west of SR 70, north of Plumas Lake Canal	Approved in 2008; no dwelling units have been constructed	557	1,700	–
Bear River	West of SR 70, spanning the north and south sides of Feather River Boulevard	Approved in 2008; however, no dwelling units have been constructed	550	2,123	31
Total			9,430	25,350	864

¹ Development capacity is assumed unchanged for purpose of cumulative impact analysis. Sources: Yuba County 2011a, 2011b, 2021

5.2 Cumulative Impact Analysis by Topic Area

5.2.1 Aesthetics

If multiple projects occur within the same viewshed or affect the same viewers, a cumulative impact could occur. Heavy equipment use at the project site during construction and O&M activities would temporarily impact visual character of the site and immediate vicinity. Imperceptible or relatively minor permanent changes to the visual character and quality of the project site would result from adding relief wells, raising levee segments, and constructing parapet walls, landside blankets, seepage berms, and closure structures. These impacts would be less than significant. However, the project would result in a potentially significant permanent impact to some residents adjacent to and near the WPIC West Levee Extension by substantially altering the views and degrading the visual character and quality of the views.

Mitigation Measures 3.2-1a and 3.2-1b would reduce impacts in this area by limiting staging and material storage in close proximity to the project site, to the extent feasible, and installing permanent fencing or vegetation outside the levee maintenance corridor to screen views of the levee from adjacent residents that currently have unobstructed views. While these mitigation measure would reduce potentially significant temporary and permanent impacts associated with degrading the visual character during and after construction activities, they would not reduce impacts to a less-than-significant level, because construction activities would still be visible, and views would be permanently altered at approximately 15 adjacent or nearby residences after construction of the WPIC West Levee Extension. However, there would be no cumulative impacts with other projects on aesthetics, as explained below.

Related probable future projects that would be located within view of the project site are not expected to be constructed concurrently with the proposed project; therefore, short-term,

construction-related cumulative impacts would be less than significant. Long-term cumulative impacts would also be less than significant because none of the related projects are anticipated to substantially degrade the visual character of the project site or vicinity either at the location of the specific affected residences adjacent to the WPIC West Levee Extension or elsewhere.

The aesthetics of the area would not be substantially degraded from the proposed project in combination with impacts from other similar projects in the area. Levees are common in the region, and levee improvements do not materially change the aesthetics either locally or regionally. Therefore, the proposed project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on aesthetics.

5.2.2 Agriculture and Forestry Resources

The proposed project would remove up to approximately 32 acres of land currently in agricultural production and up to approximately 3 acres of forestland. The agricultural land includes approximately 1 acre of Prime and Unique Farmland and approximately 14 acres of Unique Farmland. However, the remaining 17 acres of agricultural land were planted in orchard since the most recent FMMP maps were released and are anticipated to be mapped as Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) in the next update. Constructing the Goldfields West Levee would convert approximately 4 out of 146 acres of the affected orchard segment, which represents 3 percent of this total area of these affected orchards. This would be a less-than-significant because of the very small amount of resource that would be affected, compared to the overall orchard size and amount of orchard in the vicinity.

Constructing the WPIC West Levee Extension would convert approximately 14 out of 179 acres of the affected rice fields (8% of the affected rice) and 14 out of 64 acres of orchard (22% of the affected orchards). Loss of these proportions of rice and orchard in this portion of the project site would be a significant impact.

Buildout of the *Yuba County 2030 General Plan* would result in the conversion of more than 5,500 acres of Farmland to non-agricultural use (Yuba County 2011). Of this total acreage of agricultural conversion, approximately 3,900 acres is Prime Farmland, 170 acres is Farmland of Statewide Importance, 1,600 is Unique Farmland. Buildout of the East Linda Specific Plan and the Olivehurst Avenue Specific Plan would convert agricultural lands. From 2014 to 2016, the amount of Farmland in Yuba County increased by approximately 726 acres, but it decreased by approximately 1,723 acres from 2016 to 2018, an overall loss of approximately 0.02 percent. The General Plan considers cumulative loss of agricultural land in the region to be a significant cumulative impact. Therefore, a significant cumulative impact exists in Yuba County with respect to agricultural land generally and to Farmland specifically.

Implementing Mitigation Measure 3.3-1 would lessen the incremental contribution of the proposed project to cumulative impacts associated with Farmland conversion by establishing and/or enhancing agricultural use of lands in Yuba County that are not being actively cultivated or are suffering low yields due to infrastructure needs or other challenges. Although assurance

cannot be provided that TRLIA will be able to identify adequate opportunities to fully compensate for permanent Farmland loss, project-related loss of up to approximately 32 acres of Farmland would represent an extremely small proportion of the overall cumulative loss anticipated in the General Plan and would not make a cumulatively considerable incremental contribution to the significant cumulative impact.

A small amount of forestland would be removed as part of the project; given the large amount of forestland that would remain in the vicinity, this impact would be less than significant. The related projects would include both loss and creation of forestland and, in combination with the proposed project, are not anticipated to result in a significant cumulative impact on forestry resources. Therefore, the proposed project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on forestry resources.

5.2.3 Air Quality

Under the NAAQS, Yuba County is in attainment for all pollutants. Under the CAAQS, Yuba County is designated as nonattainment for PM₁₀, nonattainment-transitional for 1- and 8-hour ozone, and attainment or unclassified for all other State standards. Project emissions would be less than significant for all emissions after implementing Mitigation Measures 3.4-1a, 3.4-1b, and 3.4-1c, which require reduction in ROG, NO_x and PM₁₀ emissions compared to Statewide fleet averages, dust control measures, and participation in the FRAQMD Off-Site Mitigation Program to compensate for construction emissions that exceed FRAQMD thresholds for NO_x and ROG.

By their very nature, air quality impacts are cumulative. The region's nonattainment status is a result of past and present development, and FRAQMD has developed its significance thresholds to ensure that future air emissions support successful implementation of FRAQMD's attainment plans. The project's emissions would exceed FRAQMD thresholds of significance for ROG and NO_x; however, the project would participate in the FRAQMD Off-Site Mitigation Fund to compensate for construction emissions that exceed the thresholds. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on air quality.

5.2.4 Biological Resources

Overall, there has been a significant cumulative impact on many biological resources in Yuba County, the region, and the Sacramento Valley. Populations of several special-status plant and wildlife species; riparian habitat; vernal pools; and Federally and State-protected waters have declined as a result of numerous projects, including flood protection projects that have confined riverine corridors and adversely affected many riparian-dependent species. Therefore, a significant cumulative impact already exists with respect to these biological resources, without implementation of the proposed project.

The proposed project would have no impact or less-than-significant impacts related to special-status mammals, migratory and movement corridors and nursery sites, conflicts with local ordinances and policies, and conflicts with an HCP or NCCP. In combination with the related projects, cumulative impacts on these resources and issues also are anticipated to be less than significant.

The proposed project would have potentially significant impacts related to several special-status plant, invertebrate, and bird species; giant garter snake; riparian habitat; vernal pools; and Federally and State-protected waters. These potentially significant impacts would be reduced to less-than-significant levels by implementing Mitigation Measures 3.5-1, 3.5-2, 3.5-4, 3.5-5, 3.5-6a, 3.5-6b, 3.5-8, 3.5-9, 3.7-2, and 3.9-1. Implementing these mitigation measures would reduce the project's potential contribution to cumulative impacts on special-status species and sensitive habitats. Several of the related projects include habitat restoration and enhancement activities that would improve conditions for some of the affected resources, particularly along the Yuba River. In addition, adverse impacts of the related probable future projects are likely to be mitigated in a similar manner as the proposed project. Therefore, the proposed project would not have a cumulatively considerable incremental contribution to the existing significant cumulative impact on biological resources.

5.2.5 Cultural Resources and Tribal Cultural Resources

No known cultural resources would be impacted by the project. Although UAIC has identified TCRs that overlap portions of the project site, all are limited to areas where project-related disturbance would be confined to existing levees and maintenance corridors and are unlikely to impact these resources. Therefore, the project would not add to a cumulative impact to known cultural resources or TCRs in the region. It is possible, though unlikely, that the project could directly impact previously unidentified cultural resources, TCRs, or human remains during construction. These potentially significant impacts would be reduced to a less-than-significant level by implementing Mitigation Measures 3.6.1a, 3.6.1b, and 3.6.2. These mitigation measures would reduce the project's potential contribution to cumulative impacts on unidentified cultural resources, TCRs, or human remains. The project would therefore not make a cumulatively considerable incremental contribution to any significant cumulative impacts related to cultural resources, TCRs, or human remains.

5.2.6 Energy

Project-related energy consumption would include electricity, gasoline, and diesel fuel, primarily associated with equipment and vehicle use during construction. Very minimal energy consumption would be required for O&M activities. Yuba County has not adopted a local plan for renewable energy or energy efficiency, and the proposed project would not conflict the State's Climate Commitment to reduce reliance on non-renewable energy sources by half by 2030. In addition, construction-related energy consumption would not be wasteful, inefficient, or unnecessary. Therefore, project impacts related to energy would be less than significant. Because project-related energy consumption would primarily be limited to equipment and vehicle

operation during the temporary construction period, and this use would not be wasteful, inefficient, or unnecessary, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on energy.

5.2.7 Geology, Soils, and Paleontological Resources

The proposed project's impacts related to seismic and soil hazards would be less than significant. Other related projects would similarly include engineered improvements to avoid seismic and soil hazards. Therefore, the cumulative impact related to these hazards would be less than significant. The project's impact to paleontological resources would be potentially significant due to the underlying geologic material at the project site occurring within the Modesto and Riverbank Formations. Implementing Mitigation Measure 3.8-3 would reduce impacts to less than significant by requiring construction personnel education and stopping work if paleontological resources are discovered. Some of the related projects could have paleontological effects related to site-specific conditions at their project sites, but overall cumulative impacts would be less than significant.

Project-related construction activities include grading, excavation, and other earth-moving activities, thereby exposing soil to wind or water erosion. If uncontrolled, suspended sediment could enter adjacent water bodies and result in increased turbidity. Implementing Mitigation Measure 3.8-2 would reduce the project's potentially significant construction-related erosion impacts to less than significant. Most of the related projects and other construction projects in Yuba County would also include earth-moving activities that would expose soil to erosion from wind and water; therefore, these projects could also have significant impacts. However, each related project that would disturb 1 acre of land or more would be required to comply with NPDES discharge permits from the CVRWQCB, which require implementation of a SWPPP and erosion control BMPs. Because the project and related projects all will be required to implement permit requirements to reduce erosion impacts, the project would not generate a cumulatively considerable incremental contribution to a significant cumulative impact from construction-related erosion on geology, soils, and paleontological resources.

5.2.8 Greenhouse Gas Emissions

Climate change is a global phenomenon and any increase in GHG emissions has the potential to contribute to the greenhouse effect and climate change. However, planning for responsible GHG emissions and reductions to achieve even very aggressive goals for GHG emissions reductions allows for responsible allocation of GHG emissions to projects.

The discussions of project-related GHG emissions in Impact 3.9-1 in Section 3.9, "Greenhouse Gas Emissions," is inherently a cumulative impact discussion. FRAQMD has not established an applicable threshold for GHG, therefore, SMAQMDs threshold of 1,100 MTCO_{2e} was used. Project construction is likely to exceed this threshold and result in a significant impact. Implementing Mitigation Measures 3.4-1a, 3.4-1b, and 3.4-1c would reduce construction-related GHG emissions and ensure carbon offset credits are purchased to compensate for GHG

emissions that exceed SMAQMD thresholds after implementing emission reduction measures. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to GHG emissions.

5.2.9 Hazards and Hazardous Materials

Health and safety impacts associated with the past or current uses of a project site usually occur on a project-by-project basis and are generally limited to the specific project site. Project construction would require handling of small quantities of hazardous materials used in construction equipment (e.g., fuels, oils, lubricants) and could result in accidental spills of these materials. However, permits are required for the use, handling, and storage of these materials, and the project and all related projects would be required to comply with Federal, State, regional, and local regulatory standards to avoid inadvertent releases of hazardous waste from storage, use, disposal, or transport of hazardous materials. Implementing Mitigation Measure 3.10-1 would reduce the project's potentially significant short-term construction impacts to less than significant, and related probable future projects likely would implement similar measures to reduce impacts. In addition, any impact that might occur would likely be localized to the area where the materials are being used and would not be additive to similar potential impacts from other projects. Therefore, a significant cumulative impact is unlikely to occur.

None of the related projects would likely include substantial construction activity near the project site concurrent with the proposed project, so there would be no significant cumulative impact related to emergency response or evacuation plans. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to hazards and hazardous materials.

5.2.10 Hydrology and Water Quality

Floods have been documented in the Sacramento and San Joaquin River basins since the mid-1800s. Use of hydraulic mining to obtain gold in the later part of the 19th century caused sedimentation buildup in downstream river reaches sufficient to hamper navigation. Over time, local agricultural communities grew to become cities and suburbs where lives lost and property damage from flooding grew along with the population. This condition prompted a Federal flood control and dam construction program. The facilities associated with this program were constructed with materials at hand over many decades, to evolving design standards and construction techniques. As a result, facilities originally constructed to reclaim and reduce flooding on agricultural lands may provide inadequate protection for the urban and urbanizing areas, even if improvements are made to meet minimum Federal standards (DWR 2012).

To address the threat of flooding, legislation adopted in 2009 required DWR to establish a system-wide approach to improving flood conditions. The CVFPP is California's strategic blueprint to improve flood risk management in the Central Valley. The first plan was adopted in 2012, and the plan is updated every 5 years. The 2012 CVFPP planned for future flood risk by enhancements to the existing flood system capacity through construction of facilities such as a

new bypass, existing bypass expansion, and modified operations including use of forecast-coordinated operations/forecast-based system and increasing state standards by adopting a 200-year level of protection for urban communities (DWR 2012). Considerable progress has been made to improve flood management in the Central Valley; however, this vast region still faces significant flood risk. Approximately 1 million Californians live and work in the floodplains of the valley, which contain infrastructure, buildings, homes, and agricultural land. The 2022 CVFPP update will evaluate progress made since passing major State bonds in 2007 and will recommend future management actions led by State, local, and/or Federal agencies to continue implementation of the CVFPP. One of the three major themes of this update will be climate resilience.

Surface water flows on the Yuba River are controlled almost exclusively by operations at the New Bullards Bar Dam, where operational rules govern primary spillway releases. YWA operates New Bullards Bar Reservoir from September 16 to May 31 to reserve 170,000 ac-ft of storage space for flood control purposes. As described above under the description of projects included in this cumulative analysis, YWA is proposing to construct a secondary spillway, the ARC spillway. To evaluate the cumulative effects of the secondary spillway, HEC-RAS modeling included a future cumulative condition in which forecast informed operations (FIRO) of the ARC spillway is in place and operating and various streamflow-related requirements and agreements including the Yuba River Accord, YWA water rights for power, and water supply deliveries are maintained.

Development consistent with buildout of the *Yuba County 2030 General Plan* (Yuba County 2011a) would increase the volume and peak rate of surface runoff by expanding impervious surfaces. The General Plan also allows for development to take place in areas with a history of flooding such as the land south of Olivehurst. The General Plan EIR (Yuba County 2011b) concluded application of County policies and the adoption of grading, erosion, and flood control regulations would ensure that developed areas are protected from flood hazard and inundation by stormwater originating within or upstream of the County. Impacts from buildout of the uses permitted by the General Plan were considered less than significant.

Table 5-3 compares impacts on maximum water surface elevations under the existing pre-project condition and the cumulative condition (including all related past, present, and probable future projects) for each modeled AEP and two potential levee failure scenarios. **Table 5-4** demonstrates the maximum water surface elevation changes from implementing the previous TRLIA projects. *See Appendix E, “Hydraulic Impact Analysis Technical Memorandum,”* for the complete hydraulic impact analysis.

Implementing the proposed project would support the policies of Yuba County and CVFPP by further reducing flood risk in the area protected by the RD 784 urban levee system and would result in beneficial cumulative impacts related to flood management that have occurred in the region for the following reasons, as shown in **Table 5-3**:

- Modeled water surface elevations for the 1/50 AEP flood event under cumulative conditions show that there would be substantial reductions at 14 index points compared to existing, pre-project conditions (ranging from -0.01 foot at Index Point 14, if levees fail when overtopped, to -3.48 feet at Index Point 1) and also substantial reductions at 13 index points compared to existing, pre-project conditions (ranging from -0.01 foot at Index Point 16, if levees do not fail when overtopped, to -3.47 feet at Index Point 1). These effects all would occur without substantially increasing water surface elevations elsewhere in the studied system.
- Modeled surface water elevations for the 1/100 AEP flood event show there would be substantial reductions at 14 index points under cumulative conditions (ranging from -0.04 foot at Index Point 18, if levees fail when overtopped, to -2.03 feet at Index Point 1) and also substantial reductions at 13 Index Points compared to existing, pre-project conditions (ranging from -0.03 foot at Index Point 19, if levees do not fail when overtopped, to -2.01 feet at Index Point 1). These effects all occur without substantially increasing water surface elevations elsewhere in the studied system.
- Modeled surface water elevations for the 1/200 AEP flood event show there would be substantial reductions at 10 index points under cumulative conditions (ranging from -0.05 foot at Index Point 5, if levees fail when overtopped, to as much as -2.11 feet at Index Point 9 under both levee failure scenarios) and also substantial reductions at 10 index points compared to existing, pre-project conditions (ranging from -0.27 foot at Index Point 5, if levees do not fail when overtopped, to -2.11 feet at Index Point 9). There would be only a slight increase in surface water elevation at four index points (+0.01 foot at Index Point 1 to +0.04 foot at Index Point 19).
- Modeled surface water elevations for the 1/500 AEP flood event show there would be substantial reductions at 17 index points under cumulative conditions (ranging from -0.03 foot at Index Point 16 to -2.56 feet at Index Point 10, both if levees fail when overtopped), without substantially increasing water levels elsewhere in the studied system.

The proposed project would make a beneficial incremental contribution to these beneficial cumulative impacts from other past, present, and probable future projects related to providing increased flood protection and reducing flood risk in the area protected by the RD 784 urban levee system. The extent of the incremental contribution would vary depending on the flood recurrence interval and whether the levees fail when overtopped; in several cases, this contribution would be substantial.

Table 5-3. Comparison of Impacts on Maximum Water Surface Elevations under the Proposed Project and Cumulative Conditions

Index Point	Location	Change in Maximum Water Surface Elevations from Pre-Project (feet, NAVD 88)															
		Levees Fail if Overtopped								Levees Overtop without Failing							
		1/50 AEP		1/100 AEP		1/200 AEP		1/500 AEP		1/50 AEP		1/100 AEP		1/200 AEP		1/500 AEP	
		Proposed Project	Cumulative	Proposed Project	Cumulative	Proposed Project	Cumulative	Proposed Project	Cumulative	Proposed Project	Cumulative	Proposed Project	Cumulative	Proposed Project	Cumulative	Proposed Project	Cumulative
1	Feather River at River Mile 117.055	0	-3.48	0	-2.03	0	0	0	-1.04	0	-3.47	0	-2.01	+0.01	+0.01	0	-1.05
2	Feather River at Yuba City (Bridge Street)	0	-1.88	0	-1.14	+0.01	-0.85	0	-0.81	0	-1.87	-0.03	-1.20	+0.01	-0.86	0	-0.84
3	Feather River at Boyd's Landing	0	-1.81	0	-0.7	+0.01	-0.84	0	-0.85	0	-1.80	-0.02	-0.80	+0.02	-0.80	0	-0.87
4	Feather River below Bear River	0	-1.26	0	-0.69	0	-0.71	0	-0.61	0	-1.26	-0.01	-0.70	+0.01	-0.84	0	-0.65
5	Feather River at Sutter Bypass	0	-0.89	0	-0.48	0	-0.05	-0.01	-0.31	0	-0.88	-0.01	-0.64	0	-0.27	0	-0.45
6	Jack Slough at Union Pacific Railroad	0	-2.35	-0.01	-1.46	0	-0.70	0	-0.94	0	-2.34	-0.03	-1.44	+0.02	-0.70	0	-0.97
7	Yuba River at North Training Wall	0	-0.39	0	-0.36	+0.01	-1.59	+0.01	-0.83	0	-0.39	0	-0.36	+0.01	-1.59	0	-0.83
8	Goldfields 200-year Levee	dry	dry	dry	dry	dry	Dry	+0.03	-6.53	dry	dry	dry	dry	dry	dry	+0.04	-6.59
9	Yuba River North Levee at Walnut Avenue	dry	dry	+0.03	-0.51	+0.08	-2.11	+0.20	-0.69	dry	dry	+0.03	-0.51	+0.08	-2.11	+0.15	-0.54
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	Dry	+0.06	-2.56	dry	dry	dry	dry	dry	dry	+0.05	-0.78
11	Yuba River North Levee at Simpson Lane	0	-0.89	0	-0.42	0	-1.13	+0.01	-0.89	0	-0.86	0	-0.42	0	-1.13	0	-0.92
12	Yuba River South Levee at Dantoni Road	dry	dry	-0.78	-0.78	-1.35	-1.59	-0.15	-0.92	dry	dry	-0.78	-0.78	-1.35	-1.59	-0.20	-1.45
13	Yuba River South Levee at Simpson Lane	0	-0.72	-0.0	-0.45	-0.03	-1.92	-0.03	-1.29	0	-0.71	-0.01	-0.46	-0.04	-1.93	-0.02	-1.45
14	Dry Creek at SR 65	0	-0.01	0	0	0	0	0	0	0	+0.01	0	0	0	0	0	0
15	Bear River at SR 65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Bear River at Dry Creek	0	-0.02	+0.01	0	0	0	+0.01	-0.03	0	-0.01	0	0	0	0	0	-0.03
17	Bear River at WPIC	0	-0.24	0	-0.07	+0.01	+0.01	0	-0.30	0	-0.20	0	-0.05	+0.03	+0.03	+0.01	-0.33
18	WPIC at Reeds Creek	+0.03	-0.15	+0.03	-0.04	+0.03	+0.03	+0.02	-0.28	+0.04	-0.12	+0.03	0	+0.03	+0.03	+0.02	-0.33
19	WPIC at Best Slough	+0.02	-0.19	+0.02	-0.06	+0.03	+0.03	+0.01	-0.30	+0.01	-0.19	+0.01	-0.03	+0.04	+0.04	+0.02	-0.34

Notes: AEP = annual exceedance probability, Alt = Alternative, NAVD 88 = 1988 North American Vertical Datum, dry = flows would not reach this location under the given AEP, WPIC = Western Pacific Interceptor Canal; red text indicates an increase in water surface elevation; blue text indicates a decrease in water surface elevation
 Source: MBK Engineers 2021

Table 5-4. Difference in Maximum Water Surface Elevations under Existing (Pre-project Conditions), Compared to without Previous TRLIA Projects

Index Point	Location	Change in Maximum Water Surface Elevations with Previous TRLIA Projects (feet, NAVD 88)							
		Levees Fail if Overtopped				Levees Overtop without Failing			
		1/50 AEP	1/100 AEP	1/200 AEP	1/500 AEP	1/50 AEP	1/100 AEP	1/200 AEP	1/500 AEP
1	Feather River at River Mile 117.055	-0.50	-0.43	-0.53	-0.88	-0.50	-0.45	-0.54	-0.89
2	Feather River at Yuba City (Bridge Street)	-1.18	-1.25	-1.45	-1.89	-1.18	-1.21	-1.40	-1.89
3	Feather River at Boyd's Landing	-1.62	-1.63	-1.66	-1.56	-1.62	-1.59	-1.62	-1.62
4	Feather River below Bear River	+0.04	+0.09	+0.14	+0.66	+0.05	+0.13	+0.20	+0.29
5	Feather River at Sutter Bypass	+0.04	+0.03	0	+0.40	+0.03	+0.06	+0.11	+0.18
6	Jack Slough at Union Pacific Railroad	-1.02	-1.05	-1.26	-1.64	-1.02	-1.04	-1.23	-1.64
7	Yuba River at North Training Wall	-0.63	-0.90	-1.16	-1.45	-0.63	-0.90	-1.16	-1.44
8	Goldfields 200-year Levee	dry	-3.09	-3.50	+2.38	dry	-3.09	-3.50	+2.41
9	Yuba River North Levee at Walnut Avenue	dry	+0.23	+0.06	-0.31	dry	+0.23	+0.06	-0.22
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	-0.49	dry	dry	dry	-0.43
11	Yuba River North Levee at Simpson Lane	-0.88	-0.91	-1.15	-1.58	-0.88	-0.90	-1.14	-1.57
12	Yuba River South Levee at Dantoni Road	-1.47	-1.13	-0.58	-0.18	-1.47	-1.13	-0.58	-0.29
13	Yuba River South Levee at Simpson Lane	-0.90	-0.73	-0.69	-0.76	-0.91	-0.72	-0.67	-0.80
14	Dry Creek at SR 65	+0.01	0	0	0	0	0	0	0
15	Bear River at SR 65	0	0	0	0	0	0	0	0
16	Bear River at Dry Creek	-0.05	-0.07	-0.10	-0.12	-0.06	-0.05	-0.08	-0.10
17	Bear River at WPIC	-0.85	-0.98	-1.16	-0.26	-0.73	-0.83	-1.25	-0.79
18	WPIC at Reeds Creek	-0.74	-0.90	-1.05	-0.22	-0.36	-0.40	-0.87	-0.76
19	WPIC at Best Slough	-0.90	-0.99	-1.15	-0.18	-0.64	-0.94	-1.26	-0.76

Notes: AEP = annual exceedance probability, Alt = Alternative, dry = flows would not reach this location under the given AEP, NAVD 88 = 1988 North American Vertical Datum, WPIC = Western Pacific Interceptor Canal; red text indicates an increase in water surface elevation; blue text indicates a decrease in water surface elevation
 Source: MBK Engineers 2021

As shown in **Table 5-4**, implementing the previous TRLIA projects has reduced the maximum water surface elevations under all modeled flood intervals, compared to what the elevations would be if those projects had not been implemented. With several notable exceptions, water surface elevations have been substantially reduced by completing the previous TRLIA projects. The Feather River and Bear River setbacks provide additional conveyance capacity through the setback areas and generally reduce water surface elevations at and upstream of the setback reaches, including at all four modeled locations along the WPIC and Bear River (Index Points 16-19) and the Feather River (Index Points 1-3). Specific to the previous TRLIA projects on the Bear River and the WPIC, properties adjacent to the Horseshoe levee system, which is east of the WPIC and south of Best Slough, benefited from the Bear River north levee setback at all recurrence flood intervals. Based on this analysis, maximum water surface elevations show reductions between 0.14 to 1.14 feet from the Bear River at WPIC to the WPIC at Best Slough between the 1/50 AEP and the 1/500 AEP flood events.

The Feather River and Bear River setback levees increase Feather River water surface elevations at and downstream of the confluence with the Bear River (Index Points 4 and 5) because the setback areas allow more water to leave the Yuba River and WPIC. When this water reenters the Feather River, it slightly raises the water surface elevation downstream of the setbacks by up to 0.66 foot in the 1/500 AEP flood event but 0.2 foot or less in more frequent events. When these projects were approved by the regulatory agencies, the slight increases in water surface elevations at these locations were determined to be outweighed by the substantial reductions in water surface elevations elsewhere and the overall benefits of the projects. In addition, under the cumulative condition (with the proposed project) there are substantial reductions in water surface elevations (up to 1.26 feet) at these locations.

Similarly, the substantial increase at the Goldfields 200-year Levee location (Index Point 8) is a result of constructing that levee and preventing flood flows from entering the communities of Linda and Olivehurst and agricultural lands to the east. Increases in water surface elevations at Walnut Avenue (Index Point 9) under 100- and 200-year flood events are a result of previous TRLIA improvements in the Goldfields preventing water from outflanking the Yuba River South Levee, which would otherwise flood communities in RD 784. These previous TRLIA improvements include the Goldfields 100-year embankment, 2011 TRLIA plugs, Crossing 21, and the Goldfields 200-year levee. These features cumulatively hold floodwaters within the Goldfields properties under 1/100, 1/200, and 1/500 AEP flood events and raise water surface elevations within the main channel of the Yuba River. The rise in water surface elevation in the main channel incidentally raises water surface elevations at Walnut Avenue (Index Point 9). However, under cumulative conditions, maximum water surface elevations at Index Point 9 would be 0.51 to 2.11 feet lower under the 1/100, 1/200, and 1/500 AEP flood events when compared to the pre-project scenario. These reductions are a direct result of FIRO and utilization of the ARC spillway on the Yuba River. The Yuba River North Training Wall project also substantially contributes to the reduction in flood risk for the community of Hallwood.

As described above in Section 5.2.7, “Geology, Soils, and Paleontological Resources,” and Section 5.2.9, “Hazards and Hazardous Materials,” implementing the proposed project could result in erosion, sedimentation, and accidental discharge of pollutants into receiving waters, all of which have potential to degrade water quality. Implementing Mitigation Measures 3.8-2 and 3.10-1 would reduce the project’s potentially significant construction-related impacts associated with these issues to less than significant. Most of the related projects and other construction projects in Yuba County would also implement erosion control and sedimentation reduction measures and comply with Federal, State, regional, and local regulatory standards to avoid inadvertent releases of hazardous materials. Because the project and related projects would be required to comply with these regulations and implement permit requirements, cumulative impacts related to water quality would be less than significant, and the proposed project would not generate a cumulatively considerable incremental contribution to a significant cumulative impact.

5.2.11 Land Use and Planning

The project’s impacts related to consistency with existing adopted land use and zoning designations would be less than significant. The proposed project would be consistent with goals, objectives, and policies contained in the General Plan that address flood risk reduction for the County’s residents and property. The proposed project would provide long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events and would not cause any or only extremely minor changes to land use and planning. These impacts would not make a cumulatively considerable incremental contribution to any significant cumulative impact related to land use and planning.

5.2.12 Mineral Resources

The presence of mineral resources is dependent on the type of geologic formation, which varies from location to location and is therefore site specific. Areas along the Yuba River are known for their presence of economically valuable mineral resources; the Goldfields contain several thousand acres of economically valuable sand and gravel resources, as well as gold (and potentially other precious metals). The Goldfields West Levee portion of the project site and portions of the Yuba River South Levee are designated as MRZ-2, meaning that significant mineral deposits are present or there is a high likelihood of their presence. However, the project would not affect availability of mineral resources, interfere with current mining operations in the project vicinity, or block access to other mineral resources in the Goldfields. Therefore, project impacts on mineral resources would be less than significant. Cumulative impacts of the proposed project and the related projects on mineral resources also would be less than significant, and the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on mineral resources.

5.2.13 Noise

Cumulative noise impacts could occur if projects occur at the same time in close proximity to one another. Many of the probable future projects are not located near the TRLIA's proposed project, and thus would not contribute to a cumulative impact related to noise (noise attenuates over distance). Ambient noise levels in the project vicinity are generated by vehicle traffic, aircraft operations, agricultural operations, gravel and aggregate mining, and natural sources (e.g., wind, birds).

The General Plan EIR (Yuba County 2011b) predicts a substantial increase in vehicle traffic on local roadways that can result in the exposure of sensitive uses to unacceptable levels of transportation noise. The County concluded that while each individual project would be subject to the noise policies of the General Plan, it is not possible to demonstrate that the policies would reduce the potential for exposure to unacceptable noise levels of each future project. Therefore, buildout of the Yuba County General Plan was determined to result in a significant and unavoidable impact from exposure of sensitive uses to mobile noise sources.

The proposed project's construction-related traffic would be limited to daytime hours when people are less sensitive, cease when construction is complete, and would not result in a noticeable (3 dB or more) increase in traffic noise over current levels. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to traffic noise.

The Yuba County General Plan also considers the development or operation of noise-generating land uses that could expose noise sensitive receptors to high noise levels. Policies of the general plan include specific noise reduction measures including preparation of acoustical analysis, design improvements, relocation where feasible and similar actions to lessen this potential impact. While in most circumstances the General Plan policies would reduce noise exposure to acceptable levels, the County found it cannot demonstrate these policies would reduce noise exposure at all locations in the future and called the impact significant and unavoidable.

Project-related noise generated by non-transportation construction activity would result in temporary and periodic increases in noise levels that exceed adopted County standards and were found to be significant. Mitigation Measures 3.14-1a and 3.14-1b would reduce impacts to the extent possible by limiting noise-generating activities to certain hours, requiring other noise reduction measures, and notifying residences of construction activities and addressing complaints. Implementing these measures would not reduce project impacts to less than significant, and the impact would be significant and unavoidable. However, because project-related noise impacts would be temporary and short-term and would not include noise-generating land use, the proposed project would not make a cumulatively considerable contribution to the County's significant cumulative impact from non-transportation-related noise.

Project-related ground borne vibration levels are not predicted to exceed relevant thresholds or result in a significant impact. In addition, the related projects are not anticipated to cause

vibration during the same timeframe and at the same location as the proposed project, and the cumulative impact of these projects would be less than significant. Therefore, the proposed project would not make a cumulatively considerable incremental contribution to a significant cumulative vibration impact.

5.2.14 Population and Housing

The project would not displace any residents. Additionally, the project would not include substantial population growth. As shown in the hydraulic analysis, the project also would not increase flooding in areas not protected by the RD 784 urban levee system. The project would, however, have long-term benefits to the communities that are protected by the levee system by increasing protection from future flooding events. Therefore, the project would not have a cumulatively considerable incremental contribution to significant cumulative impacts related to population and housing, and there would not be an overall significant cumulative impact on population and housing.

5.2.15 Transportation

The proposed project would have temporary, less-than-significant impacts related to increased traffic volumes, emergency access, and alternative transportation modes. These impacts would occur during project construction, and none of the related projects are expected to be under construction concurrently and in close proximity to the proposed project. Therefore, there would not be an overall significant cumulative impact on transportation in the area affected by the proposed project, and the project would not have a cumulatively considerable incremental contribution to a significant cumulative impact.

5.2.16 Utilities and Utility Systems

The appropriate service providers are responsible for ensuring adequate provision of public utilities are provided within their service boundaries. Implementing the proposed project would reduce flood risks to utility infrastructure in the project region, thus minimizing incidents of future service disruptions resulting from flood events. The project would not require construction of new or expanded utilities or service systems to service the project site, but it could require relocation of existing utilities and result in temporary service interruptions. Several of the related projects include development that would require addition or extension of utilities and service systems. However, impacts to existing utilities and service systems from the proposed project and related projects would be geographically isolated and brief in duration. Therefore, the proposed project, in combination with the related projects, would not result in a significant cumulative impact, and the project would not make a cumulatively considerable contribution to a significant cumulative impact on utilities and service systems.

Chapter 6. **Alternatives to the Proposed Project**

This chapter describes alternatives to the proposed project and presents the environmental impacts of those alternatives compared to existing conditions. Alternatives that were considered but rejected are also presented. Project alternatives were developed to reduce or eliminate the significant or potentially significant adverse environmental impacts identified as a result of the proposed project, while still meeting most if not all of the basic project objectives. This chapter presents information to meet CEQA requirements regarding project objectives, the alternatives development and analysis process, alternatives considered but dismissed from further evaluation, alternatives selected for further evaluation, and the comparative effects of the selected alternatives relative to the proposed project. The alternatives evaluated further are:

- No-Project Alternative (required under CEQA)
- Alternative 1: No WPIC West Levee Extension
- Alternative 2: No Goldfields West Levee

As required under CCR Section 15126.6(e) of the State CEQA Guidelines, an environmentally superior alternative is identified and addressed at the end of this chapter.

6.1 California Environmental Quality Act Requirements

CCR Section 15126.6[a] of the State CEQA Guidelines requires that an EIR: (1) describe a range of reasonable alternatives to a proposed project, or to the location of the project, that would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects of the project and (2) evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a proposed project but must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

The range of alternatives required to be evaluated in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The EIR need examine in detail only those alternatives that the lead agency determines could feasibly attain most of the basic project objectives, taking into account factors that include site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and whether the project proponent can reasonably acquire, control, or otherwise have access to the alternative site (State CEQA Guidelines CCR Section 15126.6[f]). CEQA does not require the alternatives to be evaluated at the same level of detail as the proposed project.

The State CEQA Guidelines recommend that an EIR briefly describe the rationale for selecting the alternatives to be discussed, identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination (State CEQA Guidelines CCR Section 15126.6[c]).

An EIR must also evaluate a "no-project" alternative, which represents "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (State CEQA Guidelines CCR Section 15126.6[e][2]).

6.2 Alternatives Considered but Rejected from Detailed Analysis

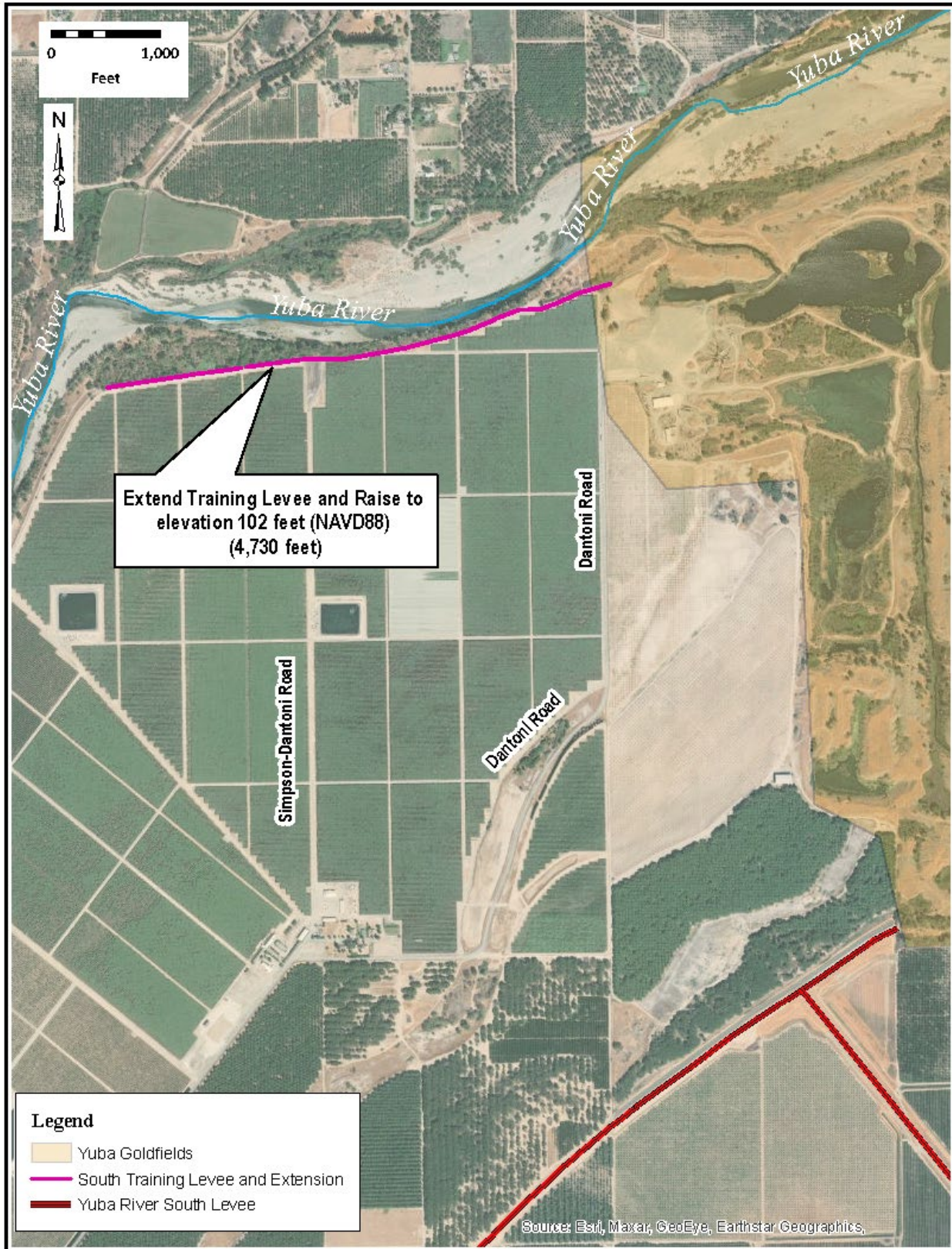
During the conceptual design of the project, several alternatives to the proposed Goldfields West Levee and Yuba River South Levee improvements were considered but rejected from detailed design and analysis. These alternatives included:

- **South Yuba Training Levee Extension and Raise.** The South Training Levee is a non-project levee adjacent to the low flow channel. It's unclear who constructed this embankment, but it appears to have been constructed in the early 1900s to prevent Yuba River floodwaters from entering adjacent agricultural lands. This alternative would extend the training levee by constructing approximately 2,900 feet of levee between Simpson-Dantoni Road and Dantoni Road. It also would raise and improve approximately 1,800 feet of the existing training levee immediately west of Simpson-Dantoni Road (**Figure 6-1**). Both the existing South Training Levee and the extension would be raised to elevation 102 feet (NAVD 88).

The primary Yuba River channel downstream of the Goldfields transitions from a trained and guided in-channel flow to an overland floodplain flow. The South Training Levee maintains Yuba River flows in the channel, directing them away from the Yuba River South Levee. The intent of the extension and raise of the South Training Levee is to extend this flow control farther downstream. By doing so, water surface elevations downstream of Yuba River South Levee station 245+00 would be reduced by approximately 0.5 to 1.0 foot. However, water surface elevations upstream of this point would increase by approximately 0.5 feet. If the South Training Levee is extended and raised, water surface elevations in the Yuba River would increase the volume of water that flows into the Yuba Goldfields over the South Training Levee. Portions of the existing embankments along the western edge of the Goldfields are not high enough to contain floodwaters in the Goldfields during a 500-year flood. Floodwaters would overtop these embankments and flow into the agricultural areas between the river and the Yuba River South Levee. If combined with the proposed Goldfields West Levee, this alternative would reduce water surface elevations along the Yuba River South Levee by approximately 0.2 to 1 foot from approximately Station 115+00 to 200+00 and up to 3 feet east of station 200+00.

The South Training Levee is not a certified levee and does not meet current State or Federal levee standards. At a minimum, the portion that is raised would need to be improved by

Figure 6-1. South Training Levee Extension and Raise Alternative



Source: MBK Engineers 2021

constructing a levee embankment that meets FEMA levee certification standards. The training wall is also not maintained. Vegetation would need to be cleared from the portion of the existing training levee that is improved, and an entity would need to assume O&M responsibilities for repair, replacement, and rehabilitation of the new and improved portions of the training levee. This alternative was rejected because of the cost required to construct the extension, improve the existing training wall, maintain both the new and improved portions, and mitigate impacts of vegetation removal. In addition, the primary benefits of this alternative rely on the unimproved portions of the South Training Levee holding up in the event of a 500-year flood.

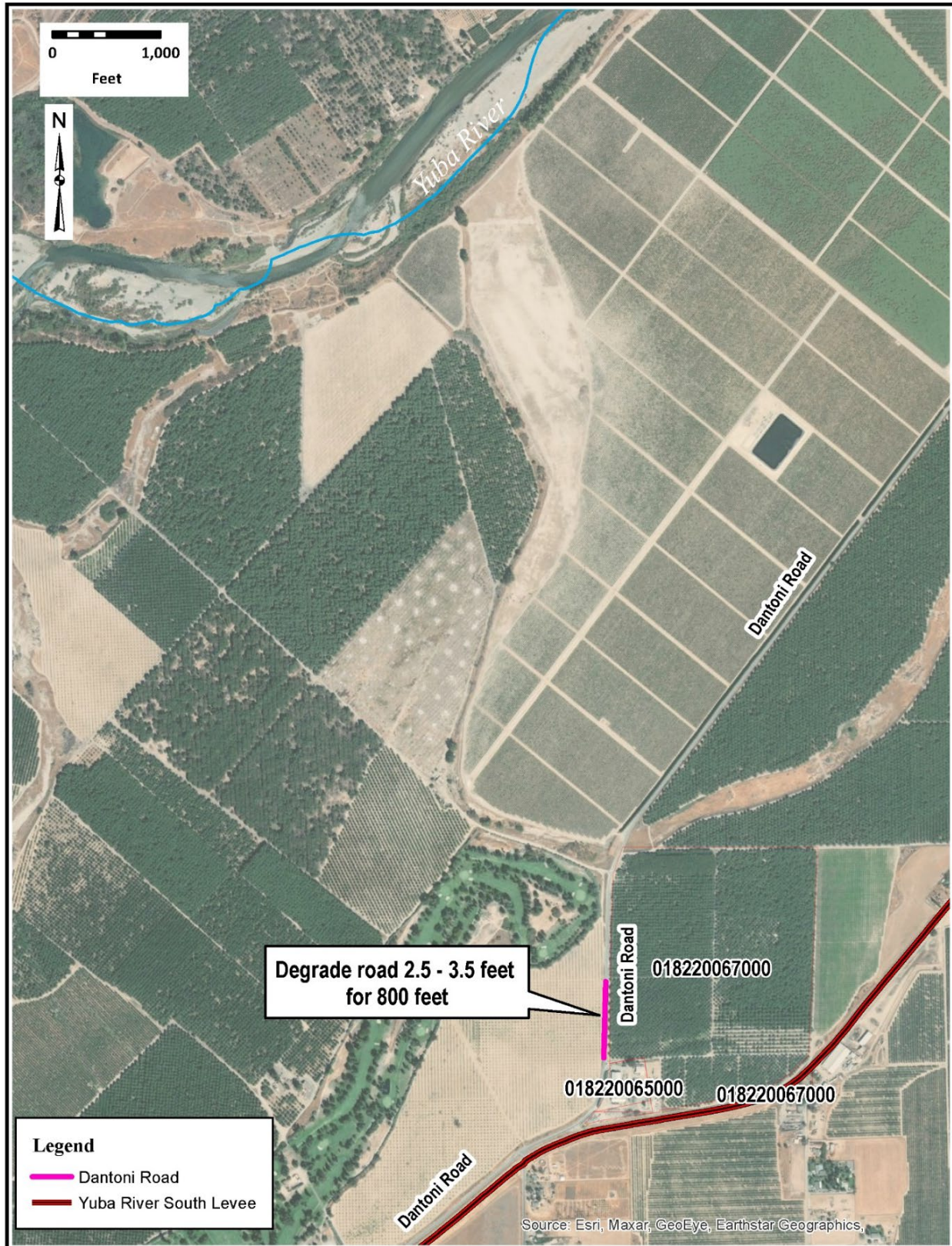
- **Dantoni Road Degrade.** Dantoni Road is elevated and is an obstruction to flows in the floodplain south of the Yuba River. In addition, the floodplain is approximately 2 feet lower on the upstream side of the road than on the downstream side. This alternative would degrade approximately 800 feet of Dantoni Road north from approximately the northwest corner of the H Miller Trucking Inc. property (APN 018-220-065-000) (**Figure 6-2**). The road crown would be lowered by 2.5 to 3.5 feet to create a level grade with the adjacent agricultural fields that border both sides of the road.

By degrading Dantoni Road, the water surface elevation along the South Yuba River Levee would be reduced by approximately 0.2 feet during a 500-year flood. This alternative was eliminated from further consideration because the flood stage reduction would be relatively small, localized, and would have impacts to transportation (i.e., increased frequency and duration of road closures).

- **Expanded Goldfields West Levee.** This alternative would extend the proposed Goldfields West Levee approximately 1,600 feet farther north to the South Training Wall, at the same consistent height of elevation 105 feet (NAVD 88) as the partial levee included in the proposed project. Site A would also be raised to 105 feet (NAVD 88), and the existing drainage structure that crosses Site A would be replaced with three 60-inch culverts (**Figure 6-3**). The objective would be to further lower water surface elevations along the Yuba River South Levee.

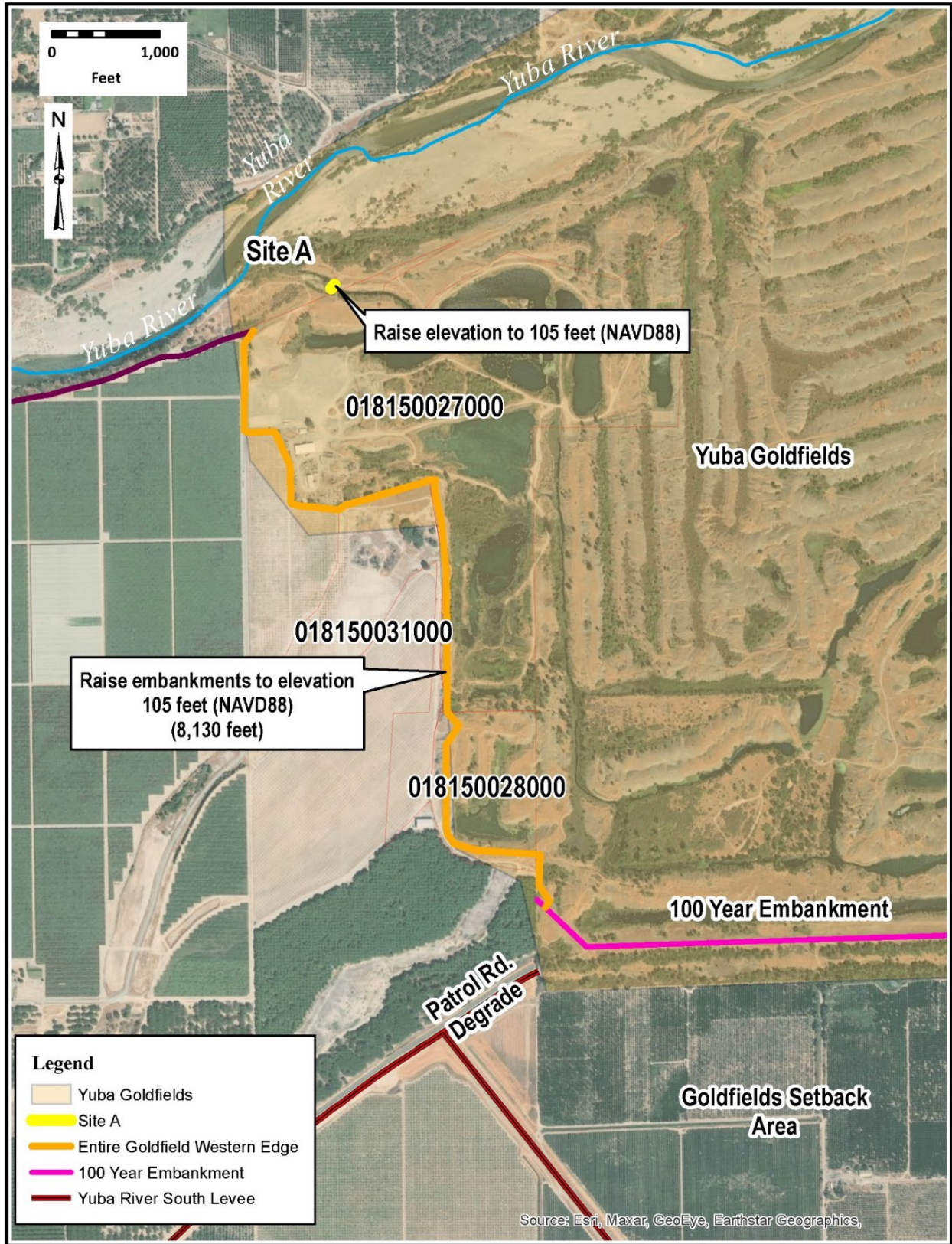
By eliminating overtopping of the existing embankment along the western edge of the Goldfields, floodwaters in the Goldfields would build up to above elevation 104 feet (NAVD 88) and flow into the area between the Goldfields and the recently constructed Goldfields 200-year Levee. These floodwaters would return to the Yuba River floodplain through the existing Yuba River South Levee degrade immediately upstream of the Goldfields 200-year Levee tie in. This flow volume returning to the Yuba River floodplain would increase water surface elevations along the Yuba River South Levee. This alternative was eliminated from further consideration because it would substantially increase water surface elevations in the Goldfields and along the Yuba River South Levee.

Figure 6-2. Dantoni Road Degrade Alternative



Source: MBK Engineers 2021

Figure 6-3. Expanded Goldfields West Levee



Source: MBK Engineers 2021

6.3 Alternatives Evaluated Further

6.3.1 No-Project Alternative

The No-Project Alternative is the existing conditions at the time the revised NOP was published (August 2, 2021), as modified by what would be reasonably expected to occur in the foreseeable future if the project is not approved. Under the No-Project Alternative, TRLIA would not construct the proposed improvements to the existing levees or construct and maintain the proposed new levee segments described in Section 2.4, “Description of Proposed Project.” As a result, the RD 784 urban levee system would continue to provide the following current varying levels of flood protection:

- Yuba River South Levee: 200- to 300-year flood protection
- Feather River East Levee and Feather River Setback Levee: 370-year flood protection
- Bear River North Levee and Bear River Setback Levee: 200- to 370-year flood protection
- WPIC West Levee: 200-year flood protection

The existing levees would continue to be maintained by RD 784. However, flood flows above the relevant levee protection currently provided could result in overtopping of some existing levee reaches and water seepage through and/or under portions of the existing levees. In areas with deficient levee height, water would flow over the top of the levee when water surface elevation exceeds the existing protection level. Areas with seepage deficiencies could experience slumping along the levee slope, pin boils, and piping of water and/or material through the levee, which could result in overtopping or levee failure. Overtopping and excessive seepage and slope instability could undermine levee integrity, which would lead to emergency flood-fighting activities to minimize flood damage and prevent additional flooding in the event of levee failure.

Aesthetics

Under the No-Project Alternative, the visual character of the project site would remain the same as under existing conditions. There would be no short-term, temporary impact from heavy equipment operation during project construction or maintenance activities and no long-term impact of constructing the WPIC West Levee Extension, as described for the proposed project in Section 3.2, “Aesthetics.” There would be **no impact**. No mitigation is required.

Agriculture and Forestry Resources

Under the No-Project Alternative, agricultural and forestry resources on the project site would remain the same as under existing conditions. This alternative would avoid removing up to approximately 4 acres of orchard and 1 acre of forest land to construct the Goldfields West Levee and up to approximately 14 acres of rice, 14 acres of orchard, and 0.75 acre of forestland to construct the WPIC West Levee Extension, as described for the proposed project in Section 3.3, “Agricultural and Forestry Resources.” There would be **no impact**. No mitigation is required.

Air Quality

Under the No-Project Alternative, there would be no short-term, temporary use of heavy equipment during project construction and no associated pollutant emissions, as described for the proposed project in Section 3.4, “Air Quality.” There would be **no impact**. No mitigation is required.

Biological Resources

The No-Project Alternative would avoid all impacts of the proposed project described in Section 3.5, “Biological Resources,” including potentially significant impacts, because no construction activities would occur. Therefore, there would be no potential for significant construction-related impacts on special-status plant, invertebrate, or bird species; giant garter snake; riparian habitat; vernal pools; or Federally or State protected waters. There would be **no impact**. No mitigation is required.

Cultural Resources and Tribal Cultural Resources

The No-Project Alternative would avoid all potential impacts on cultural resources and TCRs described in Section 3.6, “Cultural Resources,” and Section 3.17, “Tribal Cultural Resources,” for the proposed project, because no construction activities would occur. Therefore, there would be no potential for significant impacts on previously unidentified historical resources, archaeological resources, human remains, or TCRs. There would be **no impact**. No mitigation is required.

Energy

Under the No-Project Alternative, there would be no energy consumption associated with short-term, temporary use of equipment and vehicles during project construction or the minimal increase in O&M activities, as described for the proposed project in Section 3.7, “Energy.” There would be **no impact**. No mitigation is required.

Geology, Soils, and Paleontological Resources

The No-Project Alternative would avoid all construction-related impacts of the proposed project related to geology, soils, and paleontological resources, as described in Section 3.8, “Geology, Soils, and Paleontological Resources,” including potentially significant impacts. However, potential for substantial local erosion would persist under the No-Project Alternative because potential for levee overtopping, seepage, and failure under flows higher than the current flood protection levels. These impacts would be **potentially significant**. Although a potentially significant adverse impact has been identified, CEQA does not require mitigation for impacts of the No-Project Alternative; therefore, no mitigation is provided. This impact would be **potentially significant and unavoidable**.

Greenhouse Gas Emissions

Under the No-Project Alternative, there would be no short-term, temporary use of heavy equipment during project construction and no associated GHG emissions, as described for the

proposed project in Section 3.9, “Greenhouse Gas Emissions.” There would be **no impact**. No mitigation is required.

Hazards and Hazardous Materials

Under the No-Project Alternative, there would be no short-term, temporary use of heavy equipment during project construction and no associated potential accidental spills of hazardous materials, as described for the proposed project in Section 3.10, “Hazards and Hazardous Materials.” There would be **no impact**. No mitigation is required.

Hydrology and Water Quality

Under the No-Project Alternative, there would be no project-related levee improvements to advance flood protection to a 500-year protection level. Although the project area already has a high level of flood protection, climate change and the potential for higher frequencies of high intensity rain events than have occurred in the past is possible and potentially likely given current climatic trends.

It is reasonable to assume that under the No-Project Alternative the levees would be vulnerable to overtopping and potential failure in greater than a 200-year flood event, posing a risk of catastrophic flooding. In brief, a levee failure or overtopping could trigger widespread flooding; extensive damage to residential, commercial, agricultural, and industrial structures; substantial impacts to the environment; public health hazards; and potential loss of life and property. Extensive damage to utilities, roadways, and other infrastructure systems likely would occur. Water supply and sewage facilities could potentially fail. Floodwaters would become contaminated by chemicals released from inundated vehicles, homes, industrial facilities, businesses, and equipment. The magnitude of the flood damage would depend on the location of the levee breach or overtopping, severity of the storm, and river flows at the time of levee failure. In addition, emergency flood-fighting and clean-up actions would require the use of a considerable amount of heavy construction equipment.

Table 3.11-2 in Section 3.11, “Hydrology and Water Quality,” indicates the change in water surface elevations that would result from the proposed project, compared to the No-Project Alternative (i.e., existing, pre-project conditions). As indicated, the proposed project would lower the water surface elevation at a number of locations and flood intervals. In addition, seepage remediation would strengthen levees and improve protection during large flood events. Conversely, the proposed project would increase water surface elevations by minimal amounts (less than 0.5 inch) under most flow events and at most locations. Therefore, net impacts on drainage patterns, stormwater facilities, and flood flows would be beneficial. No project benefits related to reducing flood risks and impacts thereof from potential floods between a 200-year and 500-year recurrence interval would occur under the No-Project Alternative.

Under the No-Project Alternative, there would be no short-term, temporary use of heavy equipment during project construction and no associated potential water quality impacts from sedimentation or accidental spills of hazardous materials, as described for the proposed project in

Section 3.11, “Hydrology and Water Quality.” However, potential for substantial local erosion would persist under the No-Project Alternative because of the potential for levee overtopping, seepage, and failure under flows higher than the current flood protection levels, as explained above.

These potential flood-related and water quality impacts occurring from a 200-year to 500-year flood event under the No-Project Alternative would be **potentially significant**. Although a potentially significant adverse impact has been identified, CEQA does not require mitigation for impacts of the No-Project Alternative; therefore, no mitigation is provided. The flood-related and water quality impacts would be **potentially significant and unavoidable**.

Land Use and Planning

Under the No-Project Alternative, land currently zoned for agriculture and mineral extractions would not be permanently converted to construct the Goldfields West Levee and WPIC West Levee Extension, as described for the proposed project in Section 3.12, “Land Use and Planning.” However, there also would be no long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events. There would be **no impact**. No mitigation is required.

Mineral Resources

Under the No-Project Alternative, there would be no permanent conversion of land zoned for mineral extraction or use of aggregate resources from elsewhere in the Goldfields to construct the Goldfields West Levee, as described for the proposed project in Section 3.13, “Mineral Resources.” There would be **no impact**. No mitigation is required.

Noise

Under the No-Project Alternative, there would be no short-term, temporary use of heavy equipment during project construction and maintenance activities and no associated increase in ambient noise levels and groundborne vibration, as described for the proposed project in Section 3.14, “Noise.” There would be **no impact**. No mitigation is required.

Population and Housing

Consistent with the proposed project as described in Section 3.15, “Population and Housing,” under the No-Project Alternative, there would be no short-term, temporary or permanent displacement of people or housing. However, there also would be no long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events. In addition, the Yuba County Development Code states that major utilities, such as Yuba County levee systems, are allowable in areas zoned as Agricultural District. There would be **no impact**. No mitigation is required.

Transportation

Under the No-Project Alternative, there would be no increase in traffic volumes associated with transport of personnel, equipment, and materials to the project site during project construction, as described for the proposed project in Section 3.16, “Transportation.” There would be **no impact**. No mitigation is required.

Utilities and Utility Systems

Under the No-Project Alternative, there would be no contribution of solid waste to local landfills and no local utility infrastructure relocation and associated temporary service disruption during project construction, as described for the proposed project in Section 3.18, “Utilities and Service Systems.” There would be **no impact**. No mitigation is required.

6.3.2 *Alternative 1: No WPIC West Levee Extension*

Under this alternative, the existing WPIC West Levee would not be extended by constructing approximately 9,500 feet of new levee embankment north along the east side of SR 70, then east along the south side of Olivehurst to SR 65. All other components of the proposed project would be constructed, including levee construction along the western edge of the Goldfields and levee raising and seepage remediation along the existing Yuba River South Levee, Feather River East Levee, Bear River Setback Levee, Bear River North Levee, and WPIC West Levee.

Aesthetics

Under Alternative 1, there would be no short-term or long-term aesthetic impacts of constructing the WPIC West Levee Extension, as described for the proposed project in Section 3.2, “Aesthetics.” Therefore, this potentially significant and unavoidable impact would not occur. The short-term, temporary impacts from heavy equipment operation during other project activities associated with this alternative would be the same as described for the proposed project in Section 3.2, “Aesthetics.” Aesthetic impacts would be **less than significant**. No mitigation is required.

Agriculture and Forestry Resources

Impacts under this alternative would be less than described for the proposed project in Section 3.3, “Agricultural and Forestry Resources,” because up to approximately 14 acres of rice, 14 acres of orchard, and 0.75 acre of forestland would not be removed to construct the WPIC West Levee Extension. Therefore, the potentially significant and unavoidable impact from Farmland conversion would not occur. Conversion of up to approximately 4 acres of orchard and 1 acre of forest land from constructing the Goldfields West Levee would be the same as described for the proposed project in Section 3.2, “Aesthetics.” This extremely small conversion of 4 acres of Farmland is not considered to be significant. Therefore, agriculture and forestry impacts would be **less than significant** under Alternative 1. No mitigation is required.

Air Quality

Air quality impacts would be less under this alternative, compared to those described for the proposed project in Section 3.4, “Air Quality,” because the WPIC West Levee Extension would not be constructed. This project component is estimated to account for approximately 24 percent of ROG emissions, 26 percent of NO_x emissions, and 19 percent of PM₁₀ emissions. Emissions associated with other project components would be as described for the proposed project and would still exceed FRAQMD thresholds for these pollutants, under a worst-case scenario in which all project components are constructed in 1 calendar year. Therefore, all impact conclusions would remain the same as the proposed project under this alternative and would include the **potentially significant** impact associated with exceeding FRAQMD ROG, NO_x, and PM₁₀ emission thresholds. Mitigation for this potentially significant impact would be the same as identified in Section 3.4, “Air Quality,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Biological Resources

Impacts on biological resources under this alternative would be less than described for the proposed project in Section 3.5, “Biological Resources,” because loss of rice, seasonal wetlands, freshwater marsh, and riparian habitat associated with constructing the WPIC West Levee Extension would not occur. This would avoid potential impacts on special-status plants and invertebrates that could occur in seasonal wetland in this portion of the project site. Not constructing the WPIC West Levee Extension also would reduce potential impacts on western pond turtle, giant garter snake, special-status birds, sensitive natural communities, and Federally and State-protected waters and wetlands. However, impact conclusions for these resources would remain the same as the proposed project under this alternative and would include **potentially significant** impacts associated with the other project components. Mitigation measures for potentially significant impacts on these resources would be the same as identified in Section 3.5, “Biological Resources,” for the proposed project, and the impacts would be **less than significant with mitigation incorporated**.

Cultural Resources and Tribal Cultural Resources

Potential impacts on cultural resources and TCRs would be less under this alternative than described in Section 3.6, “Cultural Resources,” and Section 3.17, “Tribal Cultural Resources,” for the proposed project because the construction footprint would be approximately 150 acres smaller without the WPIC West Levee Extension. This area does not contain any known archaeological resources or TCRs but eliminating this project component would lessen potential to encounter unidentified historic or archaeological resources, human remains, or TCRs. However, all impact conclusions would remain the same as the proposed project under this alternative and would include **potentially significant** impacts associated with the other project components. Mitigation measures for potentially significant impacts would be the same as identified in Section 3.6, “Cultural Resources,” and Section 3.16, “Tribal Cultural Resources,” for the proposed project, and the impacts would be **less than significant with mitigation incorporated**.

Energy

Impacts associated with energy consumption would be less under this alternative than described in Section 3.7, “Energy,” for the proposed project because there would be no energy consumption associated with the WPIC West Levee Extension, which would require substantial material import. Energy-related impacts would remain **less than significant**. No mitigation is required.

Geology, Soils, and Paleontological Resources

Impacts on geology, soils, and paleontological resources would be less under this alternative than described in Section 3.7, “Geology, Soils, and Paleontological Resources,” for the proposed project because the construction footprint would be approximately 150 acres smaller without the WPIC West Levee Extension. This would lessen potential for construction-related erosion. However, all impact conclusions would remain the same as the proposed project under this alternative and would include **potentially significant** impacts related to erosion and potential damage or destruction of unique paleontological resources associated with the other project components. Mitigation for these potentially significant impacts would be the same as identified in Section 3.8, “Geology, Soils, and Paleontological Resources,” for the proposed project, and the impacts would be **less than significant with mitigation incorporated**.

Greenhouse Gas Emissions

GHG emissions would be less under this alternative, compared to those described for the proposed project in Section 3.9, “Greenhouse Gas Emissions,” because the WPIC West Levee Extension would not be constructed. This project component is estimated to account for approximately 30 percent of GHG emissions. Emissions associated with other project components would be as described for the proposed project and would still exceed the SMAQMD threshold for GHGs, under a worst-case scenario in which all project components are constructed in 1 calendar year. Therefore, the impact conclusion for construction-related GHG emissions would remain **significant**. Mitigation for this potentially significant impact would be the same as identified in Section 3.9, “Greenhouse Gas Emissions,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Hazards and Hazardous Materials

Impacts related to hazards and hazardous materials would be less under this alternative than described in Section 3.10, “Hazards and Hazardous Materials,” for the proposed project because the construction footprint would be approximately 150 acres smaller without the WPIC West Levee Extension. This would lessen potential for construction-related accidental spills. However, all impact conclusions would remain the same as the proposed project under this alternative and would include the **potentially significant** impact related to accidental spill of hazardous materials associated with the other project components. Mitigation for this potentially significant impact would be the same as identified in Section 3.10, “Hazards and Hazardous Materials,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Hydrology and Water Quality

Hydraulic impacts under this alternative would be very similar, and in many cases the same, as those described in Section 3.11, “Hydrology and Water Quality,” for the proposed project.

Table 6-1 provides a comparison of impacts on maximum water surface elevations under the proposed project and Alternative 1 for each of the modeled AEPs and levee failure scenarios (levees fail when overtopped and levees overtop without failing). Where there are differences, water surface elevation increases are almost always the same or higher and decreases the same or lower under Alternative 1. However, the comparative increases in water surface elevations are not substantial, and beneficial impacts on flood flows and other potential hydrologic issues would remain.

Impacts on water quality would be less under this alternative than described in Section 3.11, “Hydrology and Water Quality,” for the proposed project because the construction footprint would be approximately 150 acres smaller without the WPIC West Levee Extension. This would lessen potential for construction-related erosion and sedimentation, discharge, and accidental spills. However, all water quality impact conclusions would remain the same as the proposed project under this alternative and would include **potentially significant** impacts associated with the other project components. Mitigation for this potentially significant impact would be the same as identified in Section 3.11, “Hydrology and Water Quality,” and the impact would be **less than significant with mitigation incorporated**.

Land Use and Planning

Land use and planning impacts under this alternative would be the same as described for the proposed project in Section 3.12, “Land Use and Planning.” However, long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events would be lessened. These impacts would remain **less than significant**. No mitigation is required.

Mineral Resources

Impacts on mineral resources under this alternative would be the same as described for the proposed project in Section 3.13, “Mineral Resources.” These impacts would remain **less than significant**. No mitigation is required.

Noise

Under Alternative 1, there would be no short-term or long-term impacts of constructing the WPIC West Levee Extension, as described for the proposed project in Section 3.14, “Noise.” However, construction-related noise associated with other project components would be as described for the proposed project and would still exceed Yuba County thresholds. Therefore, the impact conclusion for construction-related noise would remain **significant**. Mitigation for this potentially significant impact would be the same as identified in Section 3.14, “Noise,” for the proposed project, but noise levels would still periodically exceed standards at some locations and the impact would remain **potentially significant and unavoidable**.

Table 6-1. Comparison of Impacts on Maximum Water Surface Elevations under the Proposed Project and Alternative 1, No WPIC West Levee Extension

Index Point	Location	Change in Maximum Water Surface Elevations from Pre-Project (feet, NAVD 88)																
		Levees Fail if Overtopped								Levees Overtop without Failing								
		1/50 AEP		1/100 AEP		1/200 AEP		1/500 AEP		1/50 AEP		1/100 AEP		1/200 AEP		1/500 AEP		
		Proposed Project	Alt 1	Proposed Project	Alt 1	Proposed Project	Alt 1	Proposed Project	Alt 1	Proposed Project	Alt 1	Proposed Project	Alt 1	Proposed Project	Alt 1	Proposed Project	Alt 1	
1	Feather River at River Mile 117.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Feather River at Yuba City (Bridge Street)	0	0	0	0	+0.01	+0.01	0	0	0	0	-0.03	0	+0.01	0	0	0	
3	Feather River at Boyd's Landing	0	0	0	0	+0.01	+0.01	0	0	0	0	-0.02	0	+0.02	0	0	0	
4	Feather River below Bear River	0	0	0	0	0	0	0	0	0	0	-0.01	0	+0.01	+0.01	0	0	
5	Feather River at Sutter Bypass	0	0	0	0	0	0	-0.01	-0.01	0	0	-0.01	-0.01	0	0	0	0	
6	Jack Slough at Union Pacific Railroad	0	0	-0.01	0	0	0	0	0	0	0	-0.03	0	+0.02	0	0	0	
7	Yuba River at North Training Wall	0	0	0	0	+0.01	+0.01	+0.01	+0.01	0	0	0	0	+0.01	+0.01	0	0	
8	Goldfields 200-year Levee	dry	dry	dry	dry	dry	dry	+0.03	+0.03	dry	dry	dry	dry	dry	dry	+0.04	+0.04	
9	Yuba River North Levee at Walnut Avenue	dry	dry	+0.03	+0.03	+0.08	+0.08	+0.20	+0.20	dry	dry	+0.03	+0.03	+0.08	+0.08	+0.15	+0.15	
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	+0.06	+0.06	dry	dry	dry	dry	dry	dry	+0.05	+0.05	
11	Yuba River North Levee at Simpson Lane	0	0	0	0	0	0	+0.01	+0.01	0	0	0	0	0	+0.03	0	0	
12	Yuba River South Levee at Dantoni Road	dry	dry	-0.78	-0.78	-1.35	-1.35	-0.15	-0.15	dry	dry	-0.78	-0.78	-1.35	-1.35	-0.20	-0.20	
13	Yuba River South Levee at Simpson Lane	0	0	-0.01	-0.01	-0.03	-0.03	-0.03	-0.03	0	0	-0.01	-0.01	-0.04	-0.02	-0.02	-0.02	
14	Dry Creek at SR 65	0	-0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	Bear River at SR 65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	Bear River at Dry Creek	0	0	+0.01	+0.01	0	0	+0.01	0	0	0	0	0	0	0	0	0	
17	Bear River at WPIC	0	0	0	0	+0.01	+0.01	0	0	0	0	0	0	+0.03	+0.02	+0.01	0	
18	WPIC at Reeds Creek	+0.03	+0.02	+0.03	+0.03	+0.03	+0.02	+0.02	+0.01	+0.04	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.02	+0.01
19	WPIC at Best Slough	+0.02	+0.01	+0.02	+0.02	+0.03	+0.02	+0.01	+0.01	+0.01	+0.01	+0.01	+0.01	+0.01	+0.04	+0.04	+0.02	+0.01

Notes: AEP = annual exceedance probability, Alt = Alternative, dry = flows would not reach this location under the given AEP, NAVD 88 = 1988 North American Vertical Datum, WPIC = Western Pacific Interceptor Canal; red text indicates an increase in water surface elevation; blue text indicates a decrease in water surface elevation
 Source: MBK Engineers 2021

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Population and Housing

Population and housing impacts under this alternative would be the same as described for the proposed project in Section 3.15, “Population and Housing.” However, long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events would be lessened. These impacts would remain **less than significant**. No mitigation is required.

Transportation

Transportation impacts would be less under this alternative, compared to those described for the proposed project in Section 3.16, “Transportation,” because the WPIC West Levee Extension would not be constructed and is estimated to account for approximately 43 percent of haul truck trips. All impact conclusions would remain the same as the proposed project under this alternative and would include a **potentially significant** impact related to conflict with use of the UPRR tracks during WPIC West Levee raising. Mitigation for this potentially significant impact would be the same as identified in Section 3.15, “Transportation,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Utilities and Utility Systems

Impacts associated with utilities and utility systems would be less under this alternative than described in Section 3.18, “Utilities and Service Systems,” for the proposed project because utility relocations and temporary service interruptions associated with the WPIC West Levee Extension would not be required. All impact conclusions would remain the same as the proposed project under this alternative and would include a **potentially significant** impact related to utility relocations and temporary service interruptions associated with Goldfields West Levee construction. Mitigation for this potentially significant impact would be the same as identified in Section 3.18, “Utilities and Service Systems,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

6.3.3 Alternative 2: No Goldfields West Levee

Under this alternative, approximately 5,000 feet of existing mine tailing embankment along the southwest edge of the Goldfields would not be modified using existing tailing materials in the Goldfields to create a levee embankment with appropriate height and geometry for flood protection purposes. All other components of the proposed project would be constructed, including extending the WPIC West Levee and levee raising and seepage remediation along the existing Yuba River South Levee, Feather River East Levee, Bear River Setback Levee, Bear River North Levee, and WPIC West Levee.

Aesthetics

Under Alternative 2, there would be no short-term or long-term impacts of constructing the Goldfields West Levee, as described for the proposed project in Section 3.2, “Aesthetics.” However, this component would be constructed in an area that is not accessible to the public or visible from the Yuba River or other public areas. The short-term and long-term impacts of

constructing the other project components would be the same as described for the proposed project and would include the **significant** long-term impact on adjacent residences of constructing the WPIC West Levee Extension. Mitigation for this significant impact would be the same as identified in Section 3.2, “Aesthetics,” for the proposed project, but the impact would remain **potentially significant and unavoidable**.

Agriculture and Forestry Resources

Impacts on agriculture under this alternative would be less than described for the proposed project in Section 3.3, “Agricultural and Forestry Resources,” because up to approximately 4 acres of orchard and 1 acre of forest land would not be removed to construct the Goldfields West Levee. However, impacts of constructing the other project components would be the same as described for the proposed project and would include the **significant** long-term impact of converting up to approximately 14 acres of rice, 14 acres of orchard, and 0.75 acre of forest land to construct the WPIC West Levee Extension. Mitigation for this significant impact would be the same as identified in Section 3.3, “Agricultural and Forestry Resources,” for the proposed project, but the impact would remain **potentially significant and unavoidable**.

Air Quality

Air quality impacts would be less under this alternative, compared to those described for the proposed project in Section 3.4, “Air Quality,” because the Goldfields West Levee would not be constructed. This project component is estimated to account for approximately 23 percent of ROG emissions, 22 percent of NO_x emissions, and 6 percent of PM₁₀ emissions. Emissions associated with other project components would be as described for the proposed project and would still exceed FRAQMD thresholds for these pollutants, under a worst-case scenario in which all project components are constructed in 1 calendar year. Therefore, all impact conclusions would remain the same as the proposed project under this alternative and would include the **potentially significant** impact associated with exceeding FRAQMD ROG, NO_x, and PM₁₀ emission thresholds. Mitigation for this potentially significant impact would be the same as identified in Section 3.4, “Air Quality,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Biological Resources

Impacts on biological resources under this alternative would be less than described for the proposed project in Section 3.5, “Biological Resources,” because loss of mining pond habitat, elderberry shrubs, and riparian habitat associated with constructing the Goldfields West Levee would not occur. This would minimize potential impacts on special-status plants that could occur in the ponds, western pond turtle, special-status birds, and sensitive natural communities. However, impact conclusions for these and other biological resources would remain the same as the proposed project under this alternative and would include **potentially significant** impacts associated with the other project components. Mitigation measures for potentially significant impacts on biological resources would be the same as identified in Section 3.5, “Biological

Resources,” for the proposed project, and the impacts would be **less than significant with mitigation incorporated**.

Cultural Resources and Tribal Cultural Resources

Potential impacts on cultural resources and TCRs would be less under this alternative than described in Section 3.6, “Cultural Resources,” and Section 3.16, “Tribal Cultural Resources,” for the proposed project because the construction footprint would be approximately 75 acres smaller without the Goldfields West Levee. This area does not contain any known archaeological resources or TCRs but eliminating this project component would avoid impacts on the Goldfields Historic District and lessen potential to encounter an unidentified archaeological resource, human remains, or TCRs. However, all impact conclusions would remain the same as the proposed project under this alternative and would include **potentially significant** impacts associated with the other project components. Mitigation measures for potentially significant impacts would be the same as identified in Section 3.6, “Cultural Resources,” and Section 3.16, “Tribal Cultural Resources,” for the proposed project, and the impacts would be **less than significant with mitigation incorporated**.

Energy

Impacts associated with energy consumption would be less under this alternative than described in Section 3.7, “Energy,” for the proposed project because there would be no energy consumption associated with the Goldfields West Levee, which would require a substantial amount of material import. Energy-related impacts would remain **less than significant**. No mitigation is required.

Geology, Soils, and Paleontological Resources

Impacts on geology, soils, and paleontological resources would be less under this alternative than described in Section 3.8, “Geology, Soils, and Paleontological Resources,” for the proposed project because the construction footprint would be approximately 75 acres smaller without the Goldfields West Levee. This would lessen potential for construction-related erosion. However, all impact conclusions would remain the same as the proposed project under this alternative and would include **potentially significant** impacts related to erosion and potential damage or destruction of unique paleontological resources associated with the other project components. Mitigation for these impacts would be the same as identified in Section 3.8, “Geology, Soils, and Paleontological Resources,” for the proposed project, and the impacts would be **less than significant with mitigation incorporated**.

Greenhouse Gas Emissions

GHG emissions would be less under this alternative, compared to those described for the proposed project in Section 3.9, “Greenhouse Gas Emissions,” because the Goldfields West Levee would not be constructed. This project component is estimated to account for approximately 18 percent of GHG emissions. Emissions associated with other project components would be as described for the proposed project and would still exceed the

SMAQMD threshold for GHGs, under a worst-case scenario in which all project components are constructed in 1 calendar year. Therefore, the impact conclusion for construction-related GHG emissions would remain **significant**. Mitigation for this potentially significant impact would be the same as identified in Section 3.9, “Greenhouse Gas Emissions,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Hazards and Hazardous Materials

Impacts related to hazards and hazardous materials would be less under this alternative than described in Section 3.10, “Hazards and Hazardous Materials,” for the proposed project because the construction footprint would be approximately 75 acres smaller without the Goldfields West Levee. This would lessen potential for construction-related accidental spills. However, all impact conclusions would remain the same as the proposed project under this alternative and would include the **potentially significant** impact related to accidental spill of hazardous materials associated with the other project components. Mitigation for this potentially significant impact would be the same as identified in Section 3.10, “Hazards and Hazardous Materials,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Hydrology and Water Quality

Hydraulic impacts under this alternative would be similar, and in many cases the same, as those described in Section 3.11, “Hydrology and Water Quality,” for the proposed project. **Table 6-2** provides a comparison of impacts on maximum water surface elevations under the proposed project and Alternative 2 for each of the modeled AEPs and levee failure scenarios (levees fail when overtopped and levees overtop without failing). Where there are differences between the proposed project and this alternative, the impacts of Alternative 2 are usually slightly less than under the proposed project, both in terms of lower water surface elevation increases and lower water surface elevation increases decreases. However, the differences in water surface elevations are not substantial, with the exception of Alternative 2 not offering the substantial beneficial water surface elevation decreases for the Yuba River South Levee at Dantoni Road (Index Point 12).

Impacts on water quality would be less under this alternative than described in Section 3.11, “Hydrology and Water Quality,” for the proposed project because the construction footprint would be approximately 75 acres smaller without the Goldfields West Levee. This would lessen potential for construction-related erosion and sedimentation, discharge, and accidental spills. However, all hydrology and water quality impact conclusions would remain the same as the proposed project under this alternative and would include **potentially significant** impacts related to water quality associated with the other project components. Mitigation for this potentially significant impact would be the same as identified in Section 3.11, “Hydrology and Water Quality,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Table 6-2. Comparison of Impacts on Maximum Water Surface Elevations under the Proposed Project and Alternative 2, No Goldfields West Levee

Index Point	Location	Change in Maximum Water Surface Elevations from Pre-Project (feet, NAVD 88)															
		Levees Fail if Overtopped								Levees Overtop without Failing							
		1/50 AEP		1/100 AEP		1/200 AEP		1/500 AEP		1/50 AEP		1/100 AEP		1/200 AEP		1/500 AEP	
		Proposed Project	Alt 2	Proposed Project	Alt 2	Proposed Project	Alt 2	Proposed Project	Alt 2	Proposed Project	Alt 2	Proposed Project	Alt 2	Proposed Project	Alt 2	Proposed Project	Alt 2
1	Feather River at River Mile 117.055	0	0	0	0	0	0	0	0	0	0	0	0	+0.01	+0.01	0	0
2	Feather River at Yuba City (Bridge Street)	0	0	0	0	+0.01	0	0	0	0	0	-0.03	-0.03	+0.01	+0.01	0	0
3	Feather River at Boyd's Landing	0	0	0	0	+0.01	0	0	0	0	0	-0.02	-0.02	+0.02	+0.01	0	0
4	Feather River below Bear River	0	0	0	0	0	0	0	0	0	0	-0.01	0	+0.01	+0.01	0	0
5	Feather River at Sutter Bypass	0	0	0	0	0	0	-0.01	-0.01	0	0	-0.01	-0.01	0	0	0	0
6	Jack Slough at Union Pacific Railroad	0	0	-0.01	-0.01	0	0	0	0	0	0	-0.03	-0.02	+0.02	+0.01	0	0
7	Yuba River at North Training Wall	0	0	0	0	+0.01	0	+0.01	0	0	0	0	0	+0.01	0	0	0
8	Goldfields 200-year Levee	dry	dry	dry	dry	dry	dry	+0.03	0	dry	dry	dry	dry	dry	dry	+0.04	0
9	Yuba River North Levee at Walnut Avenue	dry	dry	+0.03	0	+0.08	0	+0.20	0	dry	dry	+0.03	0	+0.08	0	+0.15	0
10	Yuba River North Levee at Marysville North Levee	dry	dry	dry	dry	dry	dry	+0.06	0	dry	dry	dry	dry	dry	dry	+0.05	0
11	Yuba River North Levee at Simpson Lane	0	0	0	0	0	0	+0.01	0	0	0	0	0	0	0	0	0
12	Yuba River South Levee at Dantoni Road	dry	dry	-0.78	0	-1.35	0	-0.15	0	dry	dry	-0.78	0	-1.35	0	-0.20	0
13	Yuba River South Levee at Simpson Lane	0	0	-0.01	0	-0.03	0	-0.03	0	0	0	-0.01	0	-0.04	0	-0.02	0
14	Dry Creek at SR 65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Bear River at SR 65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Bear River at Dry Creek	0	0	+0.01	+0.01	0	0	+0.01	+0.01	0	0	0	0	0	0	0	0
17	Bear River at WPIC	0	0	0	0	+0.01	+0.01	0	0	0	0	0	0	+0.03	+0.03	+0.01	+0.01
18	WPIC at Reeds Creek	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.02	+0.02	+0.04	+0.04	+0.03	+0.03	+0.03	+0.03	+0.02	+0.02
19	WPIC at Best Slough	+0.02	+0.02	+0.02	+0.02	+0.03	+0.03	+0.01	+0.01	+0.01	+0.01	+0.01	+0.01	+0.04	+0.04	+0.02	+0.02

Notes: AEP = annual exceedance probability, Alt = Alternative, NAVD 88 = 1988 North American Vertical Datum, WPIC = Western Pacific Interceptor Canal; red text indicates an increase in water surface elevation; blue text indicates a decrease in water surface elevation
 Source: MBK Engineers 2021

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Land Use and Planning

Land use and planning impacts under this alternative would be the same as described for the proposed project in Section 3.12, “Land Use and Planning.” However, long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events would be lessened. These impacts would remain **less than significant**. No mitigation is required.

Mineral Resources

Impacts on mineral resources in the Goldfields described for the proposed project in Section 3.13, “Mineral Resources,” would be avoided under this alternative because there would be no construction on the western edge of the Goldfields, and cobble materials from elsewhere in the Goldfields would not be used to construct the Goldfields West Levee. Impacts related to use of aggregate base construction materials would remain the same as the proposed project. This impact would be **less than significant**. No mitigation is required.

Noise

Under Alternative 2, there would be no short-term or long-term impacts of constructing the Goldfields West Levee, as described for the proposed project in Section 3.14, “Noise.” However, construction in this portion of the project site would not affect sensitive receptors and hauling material from elsewhere in the Goldfields would affect very few receptors. Construction-related noise associated with other project components would be as described for the proposed project and would still exceed Yuba County thresholds. Therefore, the impact conclusion for construction-related noise would remain **significant**. Mitigation for this potentially significant impact would be the same as identified in Section 3.14, “Noise,” for the proposed project, but noise levels would still periodically exceed standards at some locations and the impact would remain **potentially significant and unavoidable**.

Population and Housing

Population and housing impacts under this alternative would be the same as described for the proposed project in Section 3.15, “Population and Housing.” However, long-term benefits to the communities of southwestern Yuba County by increasing protection from future flooding events would be lessened. These impacts would remain **less than significant**. No mitigation is required.

Transportation

Transportation impacts would be less under this alternative, compared to those described for the proposed project in Section 3.16, “Transportation,” because the Goldfields West Levee would not be constructed. However, this project component is estimated to account for only approximately 12 percent of haul truck trips required for the proposed project and hauling material from elsewhere in the Goldfields would require very little travel on public roads. However, all impact conclusions would remain the same as the proposed project under this alternative and would include a **potentially significant** impact related to conflict with use of the UPRR tracks during WPIC West Levee raising. Mitigation for this potentially significant impact

would be the same as identified in Section 3.16, “Transportation,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

Utilities and Utility Systems

Impacts associated with utilities and utility systems would be less under this alternative than described in Section 3.18, “Utilities and Service Systems,” for the proposed project because utility relocations and temporary service interruptions associated with the Goldfields West Levee would not be required. However, all impact conclusions would remain the same as the proposed project under this alternative and would include a **potentially significant** impact related to utility relocations and temporary service interruptions associated with WPIC West Levee Extension construction. Mitigation for this potentially significant impact would be the same as identified in Section 3.17, “Utilities and Service Systems,” for the proposed project, and the impact would be **less than significant with mitigation incorporated**.

6.4 Comparison of Impacts of the Alternatives

Table 6-3 summarizes the comparison of the relevant impacts of the alternatives.

6.4.1 No-Project Alternative

The No-Project Alternative would avoid all of the construction-related adverse impacts of the proposed project because no construction would occur, and the landscape of the project site would be unchanged. The significant and unavoidable impacts associated with aesthetics, agricultural land conversion, and construction-related noise would also be avoided by the No-Project Alternative. However, the critical flood risk reduction benefits of the proposed project would not be realized, and the project area would still be susceptible to floods in the approximate 200- to 500-year recurrence interval. Therefore, the No-Project Alternative would have greater impacts than the proposed project related to potential for levee overtopping, erosion, and failure under flood flows greater than the existing levee protection levels and associated increased flooding. This could result in significant and unavoidable impacts on soils, hydrology, and water quality. While not identified in **Table 6-3**, numerous other resource areas such as agriculture, air quality, biological resources, energy, GHG emissions, hazards and hazardous materials, population and housing, transportation, and utilities and service systems would likely incur significant impacts if a flood event (estimated between a 200- and 500-year recurrence interval) breaches or overtops a levee that would have been improved under the proposed project. While there is a small probability of this flood event occurring, future climate change makes the probability of such a flood event more likely over time without flood risk reduction improvements.

Table 6-3. Impact Conclusions for Alternatives Compared to the Proposed Project

Environmental Topic	Proposed Project	No-Project Alternative	Alternative 1	Alternative 2
Aesthetics	PSU	NI	LTS	PSU
Agriculture and Forestry Resources	PSU	NI	LTS	PSU
Air Quality	LTS with Mitigation	NI	<i>LTS with Mitigation</i>	<i>LTS with Mitigation</i>
Biological Resources	LTS with Mitigation	NI	<i>LTS with Mitigation</i>	<i>LTS with Mitigation</i>
Cultural Resources and Tribal Cultural Resources	LTS with Mitigation	NI	<i>LTS with Mitigation</i>	<i>LTS with Mitigation</i>
Energy	LTS	NI	LTS	LTS
Geology, Soils, and Paleontological Resources	LTS with Mitigation	PSU	<i>LTS with Mitigation</i>	<i>LTS with Mitigation</i>
Greenhouse Gas Emissions	LTS with Mitigation	NI	<i>LTS with Mitigation</i>	<i>LTS with Mitigation</i>
Hazards and Hazardous Materials	LTS with Mitigation	NI	<i>LTS with Mitigation</i>	<i>LTS with Mitigation</i>
Hydrology and Water Quality	LTS with Mitigation	PSU	LTS with Mitigation	LTS with Mitigation
Land Use and Planning	LTS	NI	LTS	LTS
Mineral Resources	LTS	NI	LTS	LTS
Noise	PSU	NI	PSU	PSU
Population and Housing	LTS	NI	LTS	LTS
Transportation	LTS	NI	LTS	LTS
Utilities and Utility Service Systems	LTS	NI	LTS	LTS

Notes: Impacts in italics would be less than those of the proposed project. Impacts in bold would be greater. Impacts with gray shading would be unavoidable; NI = no impact, LTS = less than significant, PSU = potentially significant and unavoidable, SU = significant and unavoidable.

6.4.2 Alternative 1: No WPIC West Levee Extension

This alternative would reduce the construction footprint and construction equipment use because the WPIC West Levee Extension would not be constructed. Eliminating this project component would avoid potentially significant and unavoidable impacts on adjacent and nearby residences associated with aesthetics and noise and potentially significant and unavoidable impacts on agricultural resources from converting approximately 28 acres of orchard and rice.

The overall project site would be reduced by approximately 150 acres, thereby avoiding all conversion of rice, seasonal wetland, and freshwater marsh on the project site. Conversion of forestland and riparian habitat would be reduced by nearly 1 acre. This habitat impact avoidance and reduction would reduce impacts on special-status species associated with these habitats, including several plants and invertebrates, western pond turtle, giant garter snake, and several special-status birds.

Potential for impacts on cultural resources and TCRs; geology, soils, and paleontological resources; and hazards and hazardous materials; would be lessened by the general reduction in project footprint and associated equipment operation and ground disturbance. Transportation impacts would be lessened by reducing material transport and worker vehicle trips, and utility and service system impact would be reduced by avoiding relocations and service interruptions associated with this project component. Energy consumption and impacts on air quality and GHG emissions also would be reduced because less on-site equipment operation and material transport would occur. Impacts on land use and planning, mineral resources, and population and housing would be the same as under the proposed project.

Potential for impacts on water quality also would be lessened by the reduction in construction footprint. However, some of the benefits of increasing flood protection would not be realized if this component is not constructed, including protecting the Olivehurst community when flood flows from the southeast reach a certain level.

6.4.3 Alternative 2: No Goldfields West Levee

This alternative would reduce the construction footprint and construction equipment use because the Goldfields West Levee would not be constructed. The overall project site would be reduced by approximately 75 acres, thereby reducing conversion of agricultural land by 4 acres; forestland by 1 acre; aquatic mining pond habitat by 3 acres; and riparian habitat by 5 acres. This habitat impact reduction would lessen impacts on special-status species associated with these habitats, including several plants, valley elderberry longhorn beetle, western pond turtle, and several special-status birds.

Potential for impacts on cultural resources and TCRs; geology, soils, and paleontological resources; hazards and hazardous materials; and mineral resources would be lessened by the general reduction in project footprint and associated equipment operation and ground disturbance. Noise and transportation impacts would be lessened by reducing material transport and worker vehicle trips, and utility and service system impact would be reduced by avoiding relocations and service interruptions associated with this project component. Energy consumption and impacts on air quality and GHG emissions also would be reduced because less on-site equipment operation and material transport would occur. Impacts on aesthetics, land use and planning, and population and housing would be the same as under the proposed project.

Potential for impacts on water quality also would be lessened by the reduction in construction footprint. However, some of the benefits of increasing flood protection would not be realized if

this component is not constructed, including reducing the improvements required along the Yuba River South Levee.

Although several impacts would generally be less under this alternative, all impact conclusions identified in Chapter 3, “Environmental Setting, Impacts, and Mitigation Measures,” for the proposed project would remain the same, and no significant or potentially significant impacts would be reduced to less than significant. In addition, the hydraulic benefits would not occur.

6.5 Environmentally Superior Alternative

Based on the comparison of relevant impacts of the alternatives, as described in Section 6.3, “Alternatives Evaluated Further,” and summarized in **Table 6-1**, Alternative 1 is considered the environmentally superior alternative among all alternatives.

The No-Project Alternative would not result in the potentially significant and unavoidable impacts associated with aesthetics, agricultural resources, or noise, and it would not have any construction-related effects (although all are temporary, and most would be less than significant with mitigation). More importantly, under the No-Project Alternative, the area protected by the RD 784 urban levee system would continue to be susceptible to flooding in greater than 200-year flood events and associated erosion and water quality impacts that would be potentially significant. Catastrophic flooding also could have substantial on many other environmental resources. These long-term potentially significant impacts of the No-Project Alternative are considered greater than the less-than-significant construction related impacts of the proposed project and the potentially significant and unavoidable impacts related to aesthetics, agricultural resources, and noise.

Alternative 1 (No WPIC West Levee Extension) would not result in the potentially significant and unavoidable impacts associated with aesthetics or agricultural resources and would have lesser impacts than the proposed project related many of the other environmental issues. However, Alternative 1 would also lack the beneficial effect of meeting engineering standards for passing the 500-year flood. This alternative would preserve the existing condition along SR 70 upstream of the WPIC West Levee and is expected to have shallow overtopping of SR 70 during a 500-year flood, potentially flooding portions of Olivehurst. Therefore, this alternative would not meet the project objective to provide a uniform, 500-year level of flood protection.

Alternative 2 (No Goldfields West Levee) also would have lesser impacts than the proposed project related many of the environmental issues, but it would not avoid any of the potentially significant and unavoidable impacts of the proposed project. In addition, Alternative 2 would lack the beneficial effect of reducing the improvements required along the Yuba River South Levee and may not meet the project objective to complete improvements in accordance with State and Federal flood risk reduction funding requirements and within State and Federal funds available for the project.

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Executive Summary

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Chapter 1. Introduction

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Chapter 2. Project Description

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Section 3.1. Approach to the Environmental Analysis

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Chapter 6. Alternatives to the Proposed Project

No references cited.

Chapter 7. Report Preparers

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