

**Final**

# **American River Common Features, 2016 Flood Risk Management Project, Sacramento, California**

## **Supplemental Environmental Impact Statement/ Subsequent Environmental Impact Report XIV**



State Clearinghouse  
Number 2005072046

U.S. Army Corps of  
Engineers  
Sacramento District

State of California,  
Central Valley Flood  
Protection Board

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# American River Common Features, 2016 Flood Risk Management Project

## Sacramento, California Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report **XIV** December 2023

**Type of Statement:** Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR)

**Lead NEPA Agency:** U.S. Army Corps of Engineers, Sacramento District

**Lead CEQA Agency:** State of California, Central Valley Flood Protection Board

**Responsible Agency:** California Department of Water Resources and Sacramento Area Flood Control Agency

**Abstract:** The U.S. Army Corps of Engineers (USACE) and non-Federal sponsors, the State of California Central Valley Flood Protection Board (CVFPB), and the Sacramento Flood Control Agency (SAFCA), propose design refinements to the American River Common Features General Reevaluation Report, Final EIS/EIR (2016 ARCF GRR FEIS/EIR), involving Magpie Creek Project (MCP); American River Erosion Contracts 3B, 4A and 4B; Sacramento River Erosion Contract 3; American River Mitigation Site (ARMS); Sacramento River Mitigation Site (SRMS), and installation of a Piezometer Network. This SEIS/SEIR supplements the 2016 ARCF GRR FEIS/EIR authorized project, which addressed seepage, slope stability, erosion, and height concerns on the levees along the Sacramento and American Rivers for the purposes of flood risk management for the Sacramento Metropolitan area. This SEIS/SEIR describes existing environmental resources in each project component area, evaluates the direct, indirect, and cumulative environmental effects of eight alternatives, including the No Action Alternative, and describes avoidance, minimization, and mitigation measures. Most potential adverse effects would be short-term or avoided using best management practices; however, there would be some significant and unavoidable impacts associated with the Proposed Action

**Public Review and Comment:** The public review period for the Draft SEIS/SEIR began on December 22, 2023, and was extended past its original 45-day period to end on February 23, 2024. Two public meetings were held on January 10 and 16, 2024. All previous commenters and interested parties were notified of the availability of the Draft SEIS/SEIR and will be notified of this Final SEIS/SEIR. Informational updates were made available at [sacleveeupgrades.com](http://sacleveeupgrades.com), throughout the lifetime of the project including scoping period, preparation of the draft, public comment period, and preparation of the final SEIS/SEIR.

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# Acronyms and Abbreviations

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<b>Acronym or Abbreviation</b>	<b>Term</b>
AALWSE	Average Annual Low Water Surface Elevation
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
ARB	California Air Resources Board
ARCF	American River Common Features
ARCF	American River Watershed Common Features
ARCF GRR	American River Common Features General Re-evaluation Report
ARMS	American River Mitigation Site
BACT	Best Available Control Technology
Basin Plan	Sacramento River Basin and the San Joaquin River Basin
BMPs	Best Management Practices
BO	Biological Opinion
BOR	U.S. Bureau of Reclamation
BSLMS	Beach/Stone Lakes Mitigation Site
BSSCP	Bentonite Slurry Spill Contingency Plan
BUOW	Burrowing owl
C#	Contract Number
CAA	Clean Air Act of 1963 as amended
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CB	cement-bentonite
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Sacramento
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent

<b>Acronym or Abbreviation</b>	<b>Term</b>
County	County of Sacramento
CRHR	California Register of Historical Resources
CSUS	California State University, Sacramento
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
Cuckoo	Western Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )
CVFMP	Central Valley Flood Management Planning
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act of 1972
cy	Cubic Yards
dB	decibels
dBA	A-weighted Decibel
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
Delta	Sacramento-San Joaquin Delta
DMM	deep soil mixing
DPS	Distinct population segment
DWR	California Department of Water Resources
EA/EIR	Environmental Assessment/Environmental Impact Report
EFH	Essential Fish Habitat
EIP	early implementation project
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EM	Engineering Manual
EO	Executive Order
EOE	Expert Opinion Elicitation
EPA	Environmental Protection Agency
ER	Engineering Regulation
ERO	Erosion
ESA	Endangered Species Act
ESUs	evolutionarily significant units
ETL	Engineering Technical Letter

<b>Acronym or Abbreviation</b>	<b>Term</b>
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FCR	fire-cracked rock
FEIS/EIR	Final Environmental Impact Statement/Environmental Impact Report
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
FWCA	Fish and Wildlife Coordination Act of 1958
GEI	GEI Consultants, Inc.
GHG	Greenhouse gas
GGS	Giant garter snake
GPS	Geopositioning System
GRR	General Reevaluation Report
GS	Green sturgeon
HMMAMP	Habitat Mitigation, Monitoring, and Adaptive Management Plan
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
IDM	investigation-derived material
ITE	Institute of Transportation Engineers
IWM	Instream Woody Material
Leq	Equivalent Continuous Level
Leq[h]	1-hour equivalent sound level
LOS	level of service
MBTA	Migratory Bird Treaty Act
MCP	Magpie Creek Project
MIAD	Mormon Island Auxiliary Dam
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAVD	North American Vertical Datum
NBLL	North Beach Lake Levee
NCIC	North Central Information Center
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act

<b>Acronym or Abbreviation</b>	<b>Term</b>
NFIP	National Flood Insurance Program
NFS	Non-Federal Sponsor
NHPA	National Historic Preservation Act of 1966
NMFS	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NO <sub>2</sub>	nitrogen dioxide
NOA	Notice of Applicability
NOI	Notice of Intent
NO <sub>x</sub>	Nitrous Oxides
NOX	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
O&M	operations and maintenance
OHWM	Ordinary High-Water Mark
PA	Programmatic Agreement
PCE	passenger car equivalent
PED	Pre-construction, Engineering and Design
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
PM	particulate matter
PM <sub>10</sub>	PM equal to or less than 10 micrometers in diameter
PM <sub>2.5</sub>	PM equal to or less than 2.5 micrometers in diameter
PPV	Peak Particle Velocity
Proposed Action	Action Alternative
RECs	Recognized Environmental Conditions
RHA	Rivers and Harbors Act of 1899 as amended
RM	River Mile
ROD	Record of Decision
RPA	Registered Professional Archaeologist
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SB	soil-bentonite
SCB	soil-cement-bentonite
SCH	State Clearinghouse
SEA	Supplemental Environmental Assessment

<b>Acronym or Abbreviation</b>	<b>Term</b>
SEA/SEIR	Supplemental Environmental Assessment/Environmental Impact Report
SEIR	Subsequent Environmental Impact Report
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO <sub>2</sub>	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
SPRR	Southern Pacific Railroad Company
SR	Sacramento River
SRA	Shaded Riverine Aquatic
SRBPP	Sacramento Riverbank Protection Project
SREL	Sacramento River East Levee
SRFCP	Sacramento River Flood Control Project
SRMS	Sacramento River Mitigation Site
SSHCP	South Sacramento Habitat Conservation Plan
SSO	Seepage, Stability, and Overtopping
SVAB	Sacramento Valley Air Basin
SWIF	System-wide Improvement Framework
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TACs	toxic air contaminants
TRAC	Technical and Resource Advisory Committee
UAIC	United Auburn Indian Community of the Auburn Rancheria
UCB	University of California, Berkeley
URA	Uniform Relocation Assistance
US 50	United States Highway 50
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VELB	Valley Elderberry Longhorn Beetle (
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WCM	Water Control Manual
WIIN Act	Water Infrastructure Improvements for the Nation Act

<b>Acronym or Abbreviation</b>	<b>Term</b>
WQC	Water Quality Certification
WRDA	Water Resources Development Act
WSAFCA	West Sacramento Area Flood Control Agency
WSLIP	West Sacramento Levee Improvements Program
WSRA	Wild and Scenic Rivers Act
YBCU	Western Yellow-billed Cuckoo
YSAQMD	Yolo-Solano Air Quality Management District

# Executive Summary

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## Introduction

The American River Common Features 2016 Flood Risk Management Project, Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) is a joint document prepared by the U.S. Army Corps of Engineers, Sacramento District (USACE) and the Central Valley Flood Protection Board (CVFPB) to supplement the 2016 American River Common Features (ARCF) Project's May 2016 revised Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR). USACE is the Federal lead agency under NEPA and the Federal Project sponsor of the ARCF 2016 Project. CVFPB is the State lead agency under CEQA. CVFPB, the California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA) are the non-Federal sponsors (NFS) of the ARCF 2016 Project; DWR and SAFCA are key responsible agencies under CEQA.

The American River Common Features 2016 Flood Risk Management Project refers to the authorized project to construct levee improvements addressing seepage, stability, erosion, and overtopping concerns. These improvements apply to the east levee of the Sacramento River (from the American River to Freeport), the east levee of the Natomas East Main Drainage Canal (NEMDC), Arcade Creek, Magpie Creek, erosion control measures at specific locations along the American River and widening of the Sacramento Weir and Bypass. Throughout the SEIS/SEIR and its appendices, the project may also be referred to as the "American River Common Features Project," "American River Common Features WRDA 2016," and the "2016 American River Watershed Common Features Project."

In accordance with the National Environmental Policy Act (NEPA) of 1969 implementing regulations and Section 15123 of the State California Environmental Quality Act (CEQA) Guidelines, this document discloses the major conclusions of the SEIS/SEIR, areas of controversy raised by the public or an agency during the scoping and public comment periods, and issues that were resolved during the preparation of this Final SEIS/SEIR.

The ARCF 2016 Project and its compensatory mitigation, was originally authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) 1996, Pub. L. No. 104-303 § 101(a) (1), as amended by Section 366 of WRDA of 1999, Pub. L. No. 106-53, § 366. Additional authority was provided following the interim general reevaluation study in Section 1322(b) of WRDA 2016, Pub. L. No. 114-322 § 1322. This SEIS/SEIR supplements the 2016 ARCF General Reevaluation Report Final EIS/EIR (ARCF GRR FEIS/EIR).

Appropriations provided under the Construction heading, Title IV, Division B, of the Bipartisan Budget Act of 2018, Pub. L. 115-123, enacted February 2018, estimated that \$1,565,750,000, were available to undertake construction of the Project as limited by the costs of the National Economic Development (NED) plan. The current estimated cost of the authorized Project for project components evaluated in this SEIS/SEIR is \$305,340,000.

## **Proposed Action and Alternatives**

The Proposed Action (Alternative 2) in this SEIS/SEIR (Proposed Project under CEQA) consists of Design Refinements to the authorized ARCF 2016 project, including the Magpie Creek Project (MCP), American River Erosion Contracts 3B North and 3B South, 4A, and 4B, Sacramento River Erosion Contract 3, American River Mitigation Site (ARMS), Sacramento River Mitigation Site (SRMS) and Piezometer Network (Figure 3.5-1). Project alternatives (Alternative 3, 4, 5 and 6) include alternative designs and/or approaches for implementing elements of the project, such as the American River Erosion Contract 4A bike trail routes (Figure 3.5.3-4), alternatives that would retain a portion of the existing ARMS man-made pond (CEQA-only) (Figures 3.7.1-1 and 3.7.2-1), and SRMS alternatives including mitigation credits and alternative site locations (Figure 3.8.2-1).

The American and Sacramento River erosion contracts and MCP are described and evaluated at a project-level of detail. The ARMS, SRMS, American River Erosion Contract 4B, and Piezometer Network are described and analyzed at a programmatic level of detail as the selected sites for these actions are still early in the planning phase and substantial information is not currently available to accurately describe impacts at a project level of analysis.

Some of the actions described in the 2016 ARCF GRR FEIS/EIR have been accomplished; this SEIS/SEIR evaluates the additional design refinements still to be constructed by addressing any new environmental effects or substantial increases in the severity of environmental effects, including cumulative effects, that were not known and disclosed in the 2016 ARCF GRR FEIS/EIR or in the subsequent NEPA and CEQA supplemental documents to the 2016 FEIS/FEIR developed to address contract-specific design modifications to date. These supplemental documents are listed in Section 2.2.1. Related Documents and Resources. Most importantly, this SEIS/SEIR does not replace the 2016 ARCF GRR FEIS/EIR but supplements it by providing environmental analyses of the new and emerging design refinements, fully described in Chapter 2, Description of the Project Alternatives.

## **Summary of Environmental Consequences**

Table ES-1 summarizes the effects analysis provided in detail in Chapter 4 and Appendix B of this SEIS/SEIR. Resources have been grouped into four categories: Human Environment, Physical Resources, Biological Resources, and Cultural Resources. The significant environmental effects, project components, mitigation measures, and significance conclusions after mitigation implementation are identified in this summary. Both NEPA and CEQA significance conclusions are included. Potential Effects of the Proposed Action to Public Utilities, Land Use, Geologic Resources, Hydraulics & Hydrology, Greenhouse Gas, Aquatic Resources and Fisheries, and Hazardous Materials were found to have no effects or less-than-significant effects with mitigation incorporated.

## **Areas of Controversy and Issues to be Resolved**

The 2016 ARCF GRR FEIS/EIR identified several issues of controversy based on the comments received during the public scoping period and the history of the NEPA and CEQA processes

undertaken by USACE, CVFPB, and SAFCA. Several issues of controversy are applicable to the Proposed Action analyzed in this SEIS/SEIR, including:

- Construction-related impacts to biological resources, especially endangered species and their habitats,
- Vegetation and tree removal, primarily on and adjacent to levees,
- Effects to cultural resources and resources significant to indigenous tribes, and
- Effects to recreational areas and facilities.

Public scoping for this SEIS/SEIR was conducted in November 2022 and resulted in 69 categorized comments, one-third of which were related to habitat mitigation concerns. As discussed in detail in Chapter 7 and Appendix A, Scoping Report, habitat mitigation in the American River Parkway as proposed for the American River Mitigation Site (ARMS), located at River Mile 1.3 and previously referred to as “Urrutia”, emerged as an area of controversy, but those concerns have since been collaboratively resolved to the greatest extent.

The public comment period for the Draft SEIS/SEIR was conducted from December 2023 to February 2024 and resulted in over one-thousand categorized comments. Comment letters were received from three federal agencies, one state agency, five local agencies, eight interest groups and 962 individuals. The comments and responses are included in Appendix I of the Final SEIS/SEIR. Many of the comments could be grouped into similar categories, or areas of interest; these similar comments were addressed in Master Comment Responses, also included in Appendix I.

Most commenters raised concerns regarding riparian habitat and tree removal impacts related to American River Erosion Contract 3B. These fifteen Master Responses (MR) address most comments submitted:

- MR-1: Extend Public Comment Period and Host In-Person Meeting
- MR-2: Scope and Approach of Improvements in American River Erosion Contract 3B
- MR-3: Tree Removal and Plantings in American River Erosion Contract 3B and 4
- MR-4: Contract 4B Impacts to Recreation on the Lower American River
- MR-5: Mitigation Measures, Mitigation Requirements, Habitat Impacts, On- and Off-Site Mitigation and Mitigation Site Maintenance and Management
- MR-6: Public Health and Safety Impacts from Construction
- MR-7: Public Outreach and Requests for Documentation
- MR-8: Wild and Scenic Rivers Act
- MR-9: American River Mitigation Site
- MR-10: Purpose and Goals of the Lower American River Erosion Contract 4B

- MR-11: Levee Safety and Public Access
- MR-12: Property Value Impacts
- MR-13: Green Space and Physical and Mental Health
- MR-14: Social Impacts to At-Risk Communities
- MR-15: Lower American River Contract 3B Riparian Forest

Remaining project uncertainties that USACE and the NFS will resolve in subsequent documents, with no action recommended at this time include:

- Bicycle trail alignment within the footprint of American River Contract 4A,
- Site specific scour analysis at American River Contract 4B, and
- Final Designs for the Magpie Creek Project.

**Table ES-1. Summary of Effects and Mitigation Measures for the Proposed Action**

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Transportation and Circulation</u>	a. conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities (including adding 50 or more new truck trips during a.m. or p.m. peak hours); c. result in substantially increased hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	MCP, ARMS	Mitigation Measure TRANS-1	Significant & Unavoidable	Significant & Unavoidable
<u>Transportation and Circulation</u>	a & c	American River Erosion Contract 3B North and South, Contract 4A, and Contract 4B	Mitigation Measure TRANS-1	Significant & Unavoidable	Significant & Unavoidable
<u>Transportation and Circulation</u>	a & c	Sacramento River Erosion Contract 3	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are less than Significant with Mitigation Incorporated
<u>Transportation and Circulation</u>	a & c	SRMS	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are less than Significant with Mitigation Incorporated
<u>Transportation and Circulation</u>	b. conflict or inconsistency with CEQA Guidelines section 15064.3, subdivision	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Transportation and Circulation</u>	d. result in inadequate emergency services	All Contracts	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are less than Significant with Mitigation Incorporated
<u>Recreation</u>	a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of facilities would occur or be accelerated.	ARMS, SRMS, and Piezometer Network	N/A	No Impact	No Impact
<u>Recreation</u>	a. See previous description	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, and MCP	N/A	Less than Significant	Short-term to Medium-Term and Moderate to Major effects that are Less than Significant
<u>Recreation</u>	b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.; or	All Contracts except 4A	N/A	No Impact	No Impact
<u>Recreation</u>	b. See previous description	American River Erosion Contract 4A	N/A	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Recreation</u>	c. Cause substantial disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with current planning documents (such as the American River Parkway Plan).	MCP	Mitigation Measure REC-1	Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated	Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated
<u>Recreation</u>	c. See previous description	American River Erosion Contract 3B North and South, American River Erosion Contract 4B	Mitigation Measure REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable with Mitigation Incorporated, Long-term No Impact
<u>Recreation</u>	c. See description above.	American River Erosion Contract 4A	Mitigation Measure REC-	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant
<u>Recreation</u>	c. See description above.	Sacramento River Contract 3	Mitigation Measure REC-2	Less than Significant with Mitigation Incorporated	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Recreation</u>	c. See description above.	ARMS	Mitigation Measure REC-	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant
<u>Recreation</u>	c. See description above.	SRMS	Mitigation Measure REC-1	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Recreation</u>	c. See description above.	Piezometer Network	N/A	Less than Significant	Short-term and minor effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Public Utilities and Services</u>	a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection, police protection, schools, park, other public facilities	MCP, American River Erosion Contract 3B North and South, Contract 4B, Contract 4A, Sacramento River Erosion Contract 3, and the Piezometer Network	N/A	Less than Significant	No Impact
<u>Public Utilities and Services</u>	a. See previous description	SRMS and ARMS		Less than Significant	Short-Term and Minor effects that are Less than Significant
<u>Public Utilities and Services</u>	b. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Public Utilities and Services</u>	c. 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;	MCP	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	Mitigation Measure UTL-1	Less than Significant	Short-Term and Minor effects that are Less than Significant
<u>Public Utilities and Services</u>	c. See description above.	American River Erosion Contract 4A	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	No Impact
<u>Public Utilities and Services</u>	c. See description above.	ARMS	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	SRMS	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	Piezometer Network	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	No Impact

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Public Utilities and Services</u>	d. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	All Contracts	N/A	Less than Significant	Short-Term to Medium-Term and Minor effects that are Less than Significant
<u>Public Utilities and Services</u>	e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Public Utilities and Services</u>	f. 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	All Contracts	N/A	Less than Significant	No Impact
<u>Public Utilities and Services</u>	g. Not comply with or result in non-compliance with Federal, state, and local management and reduction statutes and regulations related to solid waste.	All Contracts	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	a. Divide an established community.	MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Land Use, Farmland, and Forestland</u>	a. See description above	Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South and Contract 4B	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
<u>Land Use, Farmland, and Forestland</u>	a. See description above	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Land Use, Farmland, and Forestland</u>	a. See description above	SRMS, ARMS, and Piezometer Network	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	MCP	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. See Description above.	American River Erosion Contract 3B North and South and Contract 4B	Mitigation Measures VEG-1 and VEG-2	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are less than significant with Mitigation Incorporated
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	American River Erosion Contract 4A	Mitigation Measures GEO-1, WQ-1	Less than Significant with Mitigation	Medium –Term to Long-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	Sacramento River Erosion Contract 3 and SRMS	N/A	Less than Significant	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	ARMS	Mitigation Measures GEO-1 and WQ-1	Less than Significant with Mitigation Incorporated	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	Piezometer Network	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Land Use, Farmland, and Forestland</u>	c. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. result in inadequate emergency service.	MCP	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	American River Erosion Contract 4A	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	American River Erosion Contract 3B North and South, Contract 4B, and SRMS	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	ARMS	N/A	No Impact	No Impact
<u>Land Use, Farmland and Forest land</u>	c. See description above.	Sacramento River Erosion Contract 3	N/A	No Impact	No impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	d. Conflict with existing zoning for agricultural use, or a Williamson Act contract.	MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Land Use, Farmland, and Forestland</u>	d. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and Piezometer Network	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	e. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Land Use, Farmland, and Forestland</u>	f. Result in the loss of forest land or conversion of forest land to non-forest use; or	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Land Use, Farmland, and Forestland</u>	g. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Socioeconomics</u>	Section 2.5 has been removed according to Executive Order 14148 dated January 20, 2025.	N/A	N/A	N/A	N/A

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Aesthetics and Visual Resources</u>	a. Have substantial adverse effect on a scenic vista.	MCP	N/A	No Impact	No Impact
<u>Aesthetics and Visual Resources</u>	a. See description above.	American River Erosion Contract 3B North and South, Contract 4B, SRMS, and ARMS	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less than Significant with Mitigation
<u>Aesthetics and Visual Resources</u>	a. See description above.	American River Erosion Contract 4A	N/A	Short- and Long-term Less than Significant	Short- and Long-term Minor to Moderate effects that are less than significant
<u>Aesthetics and Visual Resources</u>	a. See description above.	Sacramento River Erosion Contract 3	N/A	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
<u>Aesthetics and Visual Resources</u>	a. See description above.	Piezometer Network	N/A	Short- and Long-term Less than Significant	Short- and Long-term Minor Impacts that would be Less than Significant
<u>Aesthetics and Visual Resources</u>	b. Damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway.	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, ARMS	N/A	No Impact	No Impact
<u>Aesthetics and Visual Resources</u>	b. See description above.	SRMS	N/A	Short-term Significant and Unavoidable; Long-term Less than Significant	No Impact
<u>Aesthetics and Visual Resources</u>	b. See description above.	Piezometer Network	N/A	Less than Significant	No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aesthetics and Visual Resources</u>	c. Result in substantial degradation of the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, will the project conflict with applicable zoning and other regulations governing scenic quality.	MCP	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	American River Contract 3B North and South	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aesthetics and Visual Resources</u>	c. See description above.	American River Contract 4B	Mitigation Measure VEG-2	Short-term and Long-term Significant and Unavoidable	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aesthetics and Visual Resources</u>	c. See description above.	American River Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure VEG-2	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
<u>Aesthetics and Visual Resources</u>	c. See description above.	ARMS	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable; Long-term and Minor effects that are Less than Significant

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Aesthetics and Visual Resources</u>	c. See description above.	SRMS	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	Piezometer Network	N/A	Less than Significant	Short-term Moderate Impact that is Less than Significant and Long-Term Minor Impact that is Less than Significant
<u>Aesthetics and Visual Resources</u>	d. Create a new source of substantial light or glare which will adversely affect day or nighttime views in the area.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	Mitigation Measure VIS-1 and VIS-2	Less than Significant with Mitigation Incorporated	Short-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aesthetics and Visual Resources</u>	d. See description above.	Piezometer Network	N/A	Less than Significant	Short-term and Long-term Minor effects that are Less than Significant
<u>Geological Resources</u>	a. Expose people or structures to potential substantial adverse impacts, including risk of loss, injury, or death, through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	b. Result in substantial soil erosion or loss of topsoil.	All Contracts	Mitigation Measure GEO-1	Less than Significant with Mitigation Incorporated	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Geological Resources</u>	c. Locate project facilities on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	d. Locate project facilities on expansive soil, creating substantial risks to property.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	e. Have soils incapable of adequately supporting the use of septic tanks or alternative.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	f. Damage a unique paleontological resource or site or unique geologic feature.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, SRMS, ARMS, and Piezometer Network	N/A	Less than Significant	Negligible and Less than Significant
<u>Geological Resources</u>	f. See description above.	MCP	Mitigation Measure GEO-2	Less than Significant with Mitigation Incorporated	Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Geological Resources</u>	g. Result in the loss of availability of a known mineral resource, including locally designated resources.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Hydraulics and Hydrology</u>	a. Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	MCP	N/A	Less than Significant	Long-term and Negligible effects that are less than significant
<u>Hydraulics and Hydrology</u>	a. See description above.	American River Erosion Contract 3B North and South, Contract 4B and Sacramento River Erosion Contract 3	N/A	No Impact	No Impact
<u>Hydraulics and Hydrology</u>	a. See description above.	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	a. See description above.	SRMS and ARMS	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant; Long-term and Beneficial
<u>Hydraulics and Hydrology</u>	a. See description above.	Piezometer Network	N/A	No Impact	No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hydraulics and Hydrology</u>	b. 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: 1) result in a substantial erosion or siltation on- or off-site; 2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 3) 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; or 4) impede or redirect flood flows;	MCP	Mitigation Measure HYDRO-1	Significant and Unavoidable	Significant and Unavoidable
<u>Hydraulics and Hydrology</u>	b. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	b. See description above.	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	b. See description above.	Sacramento River Erosion Contract 3	N/A	Less than Significant	Long-term and Minor effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	b. See description above.	ARMS and SRMS	N/A	Less than Significant	Long-term and Beneficial
<u>Hydraulics and Hydrology</u>	b. See description above.	Piezometer Network	N/A	No Impact	No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hydraulics and Hydrology</u>	c. Result in the risk of release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Water Quality</u>	a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	All Contracts	-Mitigation Measure GEO-1, WATERS-1, and WQ-1	Less than Significant with Mitigation Incorporated	Long-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Water Quality</u>	b. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	MCP	Mitigation Measure GEO-1, WATERS-1, and WQ-1	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable; Long-term and Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Water Quality</u>	b. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	N/A	Short-term and Long-term Less than Significant	Short-term and long-term less than significant.
<u>Water Quality</u>	b. See description above.	American River Erosion Contract 4A	N/A	Short-term and Long-term Less than Significant	Short-term and long-term Less than Significant
<u>Water Quality</u>	b. See description above.	Sacramento River Erosion Contract 3	N/A	Short-term and Long-term Less than Significant	Short-term and long-term Less than Significant
<u>Water Quality</u>	b. See description above.	ARMS	Mitigation Measure GEO-1, and WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Water Quality</u>	b. See description above.	SRMS	Mitigation Measure GEO-1,	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term Less than Significant
<u>Water Quality</u>	b. See description above.	Piezometer Network	N/A	No Impact	No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Air Quality</u>	a. Conflict with or obstruct implementation of the applicable air quality plan or b. result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or state ambient air quality standard.	-American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	Mitigation Measure AIR-1, AIR-2, AIR-3, AIR-4, and AIR-5	Significant and Unavoidable	Significant and Unavoidable
<u>Air Quality</u>	c. Expose sensitive receptors to substantial pollutant concentrations	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
<u>Air Quality</u>	d. Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	Less than Significant	Short-term and Negligible, and Long-term and Minor effects that are Less than Significant
<u>Greenhouse Gas Emissions, and Energy Consumption</u>	a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	-Mitigation Measure GHG-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Greenhouse Gas Emissions, and Energy Consumption</u>	b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	Mitigation Measure GHG-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant.
<u>Greenhouse Gas Emissions, and Energy Consumption</u>	c. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	Less than Significant	No Impact
<u>Greenhouse Gas Emissions, and Energy Consumption</u>	d. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	No Impact	No Impact
<u>Noise and Vibration</u>	a. 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;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3	Mitigation Measure NOI-1	Significant and Unavoidable	Significant and Unavoidable
<u>Noise and Vibration</u>	a. See description above.	MCP and ARMS	Mitigation Measure NOI-1	Significant and Unavoidable	Significant and Unavoidable

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Noise and Vibration</u>	a. See description above.	SRMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
<u>Noise and Vibration</u>	b. Generate excessive ground borne vibration or ground borne noise levels;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3	Mitigation Measure NOI-1	Significant and Unavoidable	Significant and Unavoidable
<u>Noise and Vibration</u>	b. See description above.	MCP, SRMS, and ARMS	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
<u>Noise and Vibration</u>	c. 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 two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Hazards and Hazardous Materials</u>	a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;	All Contracts	N/A	Less than Significant	Short-term and Minor Effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hazards and Hazardous Materials</u>	b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, including hazards associated with existing contaminated soils, asbestos, or existing contaminated groundwater during dewatering activities;	MCP	Mitigation Measure GEO-1, HAZ-1,	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	b. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3	Mitigation Measure GEO-1, and HAZ-1	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Hazards and Hazardous Materials</u>	b. See description above.	ARMS	Mitigation Measure GEO-1, and HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	b. See description above.	SRMS	Mitigation Measure GEO-1, and HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	b. See description above.	Piezometer Network	Mitigation Measure HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hazards and Hazardous Materials</u>	d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;	MCP	N/A	Less than Significant	No Impact
<u>Hazards and Hazardous Materials</u>	d. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3, and SRMS	N/A	No Impact	No Impact
<u>Hazards and Hazardous Materials</u>	d. See description above.	ARMS	N/A	Less than Significant	No Impact
<u>Hazards and Hazardous Materials</u>	e. For a project located within 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Hazards and Hazardous Materials</u>	f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	MCP	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hazards and Hazardous Materials</u>	f. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3, SRMS, and ARMS	Mitigation Measure TRANS-1, and HAZ-2	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	f. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	a. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.	All Contracts	Mitigation Measure VEG-1, VEG-2, VIS-2, BIRD-1	Less than Significant with Mitigation Incorporated	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	b. 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.	All Contracts	Mitigation Measure BIRD-1, VEG-1, VEG-2, VIS-2	Less than Significant with Mitigation Incorporated.	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated.
<u>Vegetation and Wildlife</u>	c. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 3B North and South, Contract 4B	Mitigation Measure VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Negligible with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Vegetation and Wildlife</u>	c. See description above.	American River Erosion Contract 4A	Mitigation Measure VEG-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	c. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	c. See description above.	MCP	Mitigation Measure VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Minor Effects that are Less than Significant with Mitigation Incorporated.
<u>Vegetation and Wildlife</u>	c. See description above.	SRMS and ARMS	N/A	Short-term Less than Significant; Long-term No Effect	Short-term and Moderate effects that are Less than Significant; Long-term No Effect
<u>Vegetation and Wildlife</u>	c. See description above.	Piezometer Network	N/A	Short-term and Long-term Less than Significant	Short-term and long-term less than Significant
<u>Vegetation and Wildlife</u>	d. 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.	American River Erosion Contract 3B North and South and Contract 4B	Mitigation Measure WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	American River Erosion Contract 4A	Mitigation Measure WATERS-1	Less than Significant with Mitigation Incorporated	Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	SRMS and ARMS	Mitigation Measure WATERS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated; Long-term Negligible effects

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Vegetation and Wildlife</u>	d. See description above.	MCP	Mitigation Measure WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Negligible Long-term Effects that are Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	American River Erosion Contract 3B North and South, Contract 4A and 4B, ARMS and Piezometer Network	Mitigation Measure VEG-2	Less than Significant with Mitigation Incorporated.	Negligible effects that are Less than Significant with Mitigation Incorporated.
<u>Vegetation and Wildlife</u>	e. See description above.	Sacramento River Erosion Contract 3 and SRMS, and MCP	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	American River Erosion Contract 3B North and South, Contract 4A and 4B, ARMS and Piezometer Network	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	f. See description above.	Sacramento River Erosion Contract 3 and SRMS	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	f. See description above.	MCP	N/A	No Impact	No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aquatic Resources and Fisheries</u>	a. Result in 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 CDFW, USFWS, or NMFS; b. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors; impede the use of native wildlife nursery sites; substantially reduce the habitat of a fish population; or cause a fish population to drop below self-sustaining levels.	MCP and Piezometer Network	N/A	No Impact	No Impact
<u>Aquatic Resources and Fisheries</u>	a. & b.	American River Erosion Contract 3B North and South, and Contract 4B	Mitigation Measure FISH-1, FISH-2, FISH-3, GEO-1, VEG-1 and VEG-2	Less than Significant with Mitigation Incorporated	Short-Term to Medium-Term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aquatic Resources and Fisheries</u>	a. & b.	American River Erosion Contract 4A	Mitigation Measure FISH-1, FISH-2, FISH-3, GEO-1	Less than Significant with Mitigation Incorporated	Short-term and Long-term, Moderate Effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aquatic Resources and Fisheries</u>	a. & b.	Sacramento River Erosion Contract 3	Mitigation Measure FISH-1, FISH-2, FISH-3, GEO-1, WATERS-1, WQ-1	Less than Significant with Mitigation Incorporated	Short-Term and Moderate and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Aquatic Resources and Fisheries</u>	a. & b.	ARMS	Mitigation Measure FISH-3, GEO-1, WATERS-1, WQ-1	Less than Significant with Mitigation Incorporated	Short-Term and Moderate and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Aquatic Resources and Fisheries</u>	a. & b.	SRMS	Mitigation Measure FISH-3, GEO-1, WATERS-1, WQ-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Special Status Species</u>	a. Result in 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 CDFW, USFWS, or NMFS;	American River Erosion Contract 3B North and South, Contracts 4A and 4B, Sacramento River Erosion Contract 3, ARMS and Piezometer Network	Mitigation Measure BADGER-1, VEG-1, VEG-2, BAT-1, BEE-1, MONARCH-1, VELB-1, TURTLE-1, GEO-1, WQ-1, BIRD-1, BUOW-1, PLANT-1	Less than Significant with Mitigation Incorporated	Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
<u>Special Status Species</u>	a. See description above.	MCP	Mitigation Measure SHRIMP-1, GEO-1, WQ-1, WATERS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
<u>Special Status Species</u>	a. See description above.	SRMS	Mitigation Measure BEETLE-1, VELB-1, GGS-1	Less than Significant with Mitigation Incorporated	Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Special Status Species</u>	b. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	All Contracts	N/A	Less than Significant with Mitigation Incorporated. (see Vegetation and Wildlife Appendix B 4.1)	Less than Significant with Mitigation Incorporated. Short-term Moderate effects that are Less than Significant with Mitigation Incorporated (see Vegetation and Wildlife Appendix B 4.1).
<u>Cultural and Tribal Resources</u>	n. Alter NRHP-listed Resources or Cause a Substantial Change in the Significance of a Historic Property	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network	Implement Programmatic Agreement	N/A	Less than Significant with Mitigation Incorporated
<u>Cultural and Tribal Resources</u>	a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, ARMS, SRMS		No Impact	N/A
<u>Cultural and Tribal Resources</u>	a. See description above.	Sacramento River Erosion Contract 3 and Piezometer Network	N/A	Less than Significant	N/A
<u>Cultural and Tribal Resources</u>	b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Less than Significant with Mitigation	N/A
<u>Cultural and Tribal Resources</u>	b. See description above.	Sacramento River Erosion Contract 3, and Piezometer Network	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Less than Significant with Mitigation Incorporated	N/A
<u>Cultural and Tribal Resources</u>	b. See description above.	ARMS	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Significant and Unavoidable	N/A

<b>Environmental Resource Category</b>	<b>Effect Threshold</b>	<b>Project Component Locations</b>	<b>Avoidance, Minimization and Mitigation Measures</b>	<b>CEQA Significance Conclusion</b>	<b>NEPA Effects Determination</b>
<u>Cultural and Tribal Resources</u>	c. Disturb any human remains, including those interred outside of dedicated cemeteries	All Contracts	Mitigation Measure CR-6	Less than Significant with Mitigation Incorporated	N/A
<u>Cultural and Tribal Resources</u>	d. Cause a substantial adverse change in the significance of a Tribal cultural resource	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, SRMS, Piezometer Network	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Less than Significant with Mitigation Incorporated	N/A
<u>Cultural and Tribal Resources</u>	d. See description above.	ARMS	Mitigation Measure CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6	Significant and Unavoidable	N/A

# Chapter 1. Introduction

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The American River Common Features 2016 Flood Risk Management Project, Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) is a joint document prepared by the U.S. Army Corps of Engineers, Sacramento District (USACE) and the Central Valley Flood Protection Board (CVFPB) to supplement the 2016 American River Common Features (ARCF) Project's Final EIS/EIR. USACE is the Federal lead agency under NEPA and the Federal Project sponsor of the ARCF 2016 Project. CVFPB is the State lead agency under CEQA. CVFPB, the California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA) are the non-Federal sponsors (NFS) of the ARCF 2016 Project; DWR and SAFCA are responsible agencies under CEQA.

The American River Common Features 2016 Flood Risk Management Project refers to the authorized project to construct levee improvements addressing seepage, stability, erosion, and overtopping concerns. These improvements apply to the east levee of the Sacramento River (from the American River to Freeport), the east levee of the Natomas East Main Drainage Canal (NEMDC), Arcade Creek, Magpie Creek, erosion control measures at specific locations along the American River and widening of the Sacramento Weir and Bypass. Throughout the SEIS/SEIR and its appendices, the project may also be referred to as the "American River Common Features Project," "American River Common Features WRDA 2016," and the "2016 American River Watershed Common Features Project."

The ARCF 2016 Project was originally authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) 1996, Pub. L. No. 104-303 § 101(a) (1), 110 (1996), as amended by Section 366 of WRDA of 1999, Pub. L. No. 106-53, § 366 (1999). Additional authority was provided following the interim general reevaluation study in Section 1322(b) of WRDA 2016, Pub. L. No. 114-322 § 1322. This SEIS/SEIR supplements the ARCF GRR FEIS/EIR.

This SEIS/SEIR analyzes design refinements to the authorized ARCF 2016 Project, including engineering design modifications, footprint expansions, and compensatory habitat mitigation approaches. The design refinements include actions within eight major project components: American River Erosion Contracts 3B, 4A, and 4B; Sacramento River Erosion Contract 3; Magpie Creek Project (MCP), American River Mitigation Site (ARMS); Sacramento River Mitigation Site (SRMS), and installation of a Piezometer Network. Alternatives designs and/or approaches for implementing the American River Erosion Contract 4A bike trail routes, ARMS pond retention (CEQA-only), and SRMS alternative locations and mitigation credits are also described and analyzed. These project refinements and alternatives are described in detail in Chapter 3, Description of the Project Alternatives.

The American and Sacramento River Erosion contracts and MCP are described and evaluated at a project-level of detail. The ARMS, SRMS, Lower American River Contract 4B, and Piezometer Network are described and analyzed at a programmatic level of detail because the selected sites for these actions are still early in the planning phase and substantial information is

not currently available to accurately describe impacts at a project level of analysis. These actions will require additional CEQA compliance and may require additional NEPA compliance at a project level of analysis, including public review, before they can be implemented.

## 1.1 Scope of the Environmental Analysis

NEPA applies to all “major Federal actions significantly affecting the quality of the human environment” 42 USC § 4332(C) and is intended to result in better informed decisions and to allow for greater public involvement. Under NEPA, supplemental NEPA documentation, which could include a Supplemental Environmental Impact Statement (SEIS), must be prepared when a major Federal action is modified in a way that may cause a significant effect on the quality of the natural or human environment not analyzed in the original EIS prepared prior to adoption of the Federal action. USACE has determined that design refinements to the authorized project (Alternative 2) described in the 2016 ARCF GRR FEIS/EIR), as well as new alternatives, may have new undisclosed significant effects on the environment and, therefore, a SEIS is required to supplement the 2016 ARCF GRR FEIS/EIR. Likewise, CEQA requires a subsequent EIR when substantial changes to a project or new information of substantial importance not known and could not have been known at the time the previous EIR was certified would cause new significant environmental effects, or a substantial increase in the severity of previously identified effects that require major revisions to the EIR (State CEQA Guidelines Section 15162 [a][1]-[3]), that were not discussed in the previous EIR. Accordingly, this subsequent EIR is required by State CEQA Guidelines Section 15162 to build upon the 2016 ARCF GRR FEIS/EIR.

The 2016 ARCF GRR FEIS/EIR analyzed the environmental effects of two project alternatives within the largest footprint that was expected to be constructed. The scope of the 2016 ARCF GRR FEIS/EIR included the evaluation of the Federal interest in addressing seepage, slope stability, erosion, and height concerns on the levees along the Sacramento and American Rivers that reduce potential flood risk to the Sacramento metropolitan area.

Some of the actions described in the 2016 ARCF GRR FEIS/EIR have been accomplished; this SEIS/SEIR evaluates additional design refinements identified since 2016 by addressing the environmental effects or substantial increases in the severity of environmental effects, including cumulative effects. These design refinements were not considered in the subsequent NEPA and CEQA supplemental documents (Section 2.2.1. Related Documents and Resources) to the ARCF GRR FEIS/EIR developed to address contract-specific design modifications to date (USACE 2015; GEI Consultants and SAFCA 2016; USACE 2016; USACE, SAFCA, and CVFPB 2019a, 2019b; USACE and CVFPB 2019, 2020, 2021a, 2021b, 2021c, 2021d, 2022a, 2022b; USACE 2021; USACE 2022b). Thus, this SEIS/SEIR supplements the 2016 ARCF GRR FEIS/EIR by providing environmental analyses of design refinements, fully described in Chapter 2 below (Description of the Project Alternatives) for which no environmental effects consideration has been provided to decision-makers.

For the purpose of this SEIS/SEIR, the NEPA “No Action Alternative” reflects baseline conditions existing today within the project area, including completed elements of the authorized Proposed Action (described as Alternative 2 in the 2016 ARCF GRR FEIS/EIR) as well as elements of Alternative 2 now in construction, or soon to be constructed. This differs from the

No Project Alternative under CEQA, where no construction would occur beyond what has been constructed as of January 2023. If there is a need to describe a situation where no project would be constructed in the supplemental analysis that follows, it would be described as a “no construction alternative” to avoid confusion.

## **1.2 Project Location and Study Area**

### **1.2.1 Project Location**

The Project includes several distinct locations where its components would be constructed (MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, ARMS, SRMS, and the Piezometer Network). These locations are described in more detail below and shown on Figure 3.5-1.

The MCP location is north of Interstate 80 (I-80) and is bisected by Raley Boulevard. The MCP is estimated to be approximately 8,600 feet long within Sacramento County between the North Highlands and Rio Linda communities. The Magpie Creek Diversion Channel (MCDC) moves water from the McClellan Business Park area to Robla Creek, then west into the Natomas East Main Drainage Canal (NEMDC). The NEMDC terminates in the American River, making it a part of the American River North Basin, one of the subbasins for the American River Watershed. The American River Watershed is a part of the overall Sacramento Basin and the Lower American River (LAR) feeds into the Sacramento River in Sacramento (Figure 3.5-1).

Sacramento River Erosion Contract 3 begins approximately 7 miles downstream from the confluence of the American and Sacramento Rivers in a part of the Sacramento River that receives tidal influence. Contract 3 totals 2.8 miles between river miles (RM) 47.3 and 53.1 along the river’s east levee in Sacramento’s Pocket neighborhood.

American River Erosion Contract 3B North and South, and American River Erosion Contract 4A are two erosion protection projects from the 2016 authorized alternative. American River Erosion Contract 3B North and South are made up of three different sites. Site 3-1, 1.1 miles of erosion protection, is located on the right (north) bank between Howe Avenue and Watt Avenue between River Mile (RM) 7.7 to RM 8.8. Site 4-1, 1.5 miles of erosion protection, is located on the left bank upstream of Watt Avenue between RM 9.1 to RM 10.5. Site 4-2, 0.7 miles of erosion protection, is located on the right bank near the Estates Drive River Access between RM 9.7 to RM 10.3. American River Erosion Contract 4A, a 100-foot berm, is on the right bank downstream from these locations near RM 2.0 under the State Route 160 Bridge and the Union Pacific Railroad (UPRR) Bridge.

American River Erosion Contract 4B is an additional erosion protection project along the American River. This contract is in the conceptual phase. It is anticipated that a total of 0.6 miles of erosion protection work would be done on the right bank near RM 8.6 and on the left bank near RM 9.8.

The ARMS is located on the American River at RM 1.3. The site is on the water side of the Federal levee, approximately 120 acres and is subject to tidal influence. It was historically operated as a sand and gravel mine.

The SRMS is located at the confluence of the Sacramento River, Steamboat Slough and Cache Slough, near Sacramento RM 15, and is approximately 200 acres. It is currently open space habitat that is occasionally used as a dredge material disposal site. The dredged material originates from the Sacramento Deep Water Ship Channel and maintenance dredging is managed by the USACE San Francisco District (SPN). Site designs have been coordinated with the SPN and they are in support of the onsite mitigation. The property also contains a decommissioned landfill and is bisected North to South by the Federal Levee.

The Piezometer Network will be installed throughout the project footprint that was defined in the 2016 ARCF GRR FEIS/EIR.

### **1.3 Background of the American River Common Features Project**

The ARCF GRR FEIS/EIR provides a full background and history of the ARCF 2016 Project, which is summarized below.

The basic authority for USACE to study flood risk reduction needs, formerly called flood control, in the American River basin is in the Flood Control Act of 1962 (Public Law 87-874). Following the 1986 flooding in the Sacramento area, Congress directed USACE to investigate additional means to reduce flood risk to the city of Sacramento. The authorization for the 1-year reconnaissance study was included in the 1987 Appropriations Act, and committee language accompanying the Fiscal Year 1988 Continuing Appropriations Act (Public Law 100-2002). In December 1991, USACE published the American River Watershed Investigation, California: Feasibility Report, Part I: Main Report and Part II: EIS/EIR which recommends a concrete gravity flood detention dam at the Auburn Dam site and levee improvements downstream of Folsom Dam. Following study completion, Congress directed USACE to conduct supplemental analysis of the flood management options considered in the 1991 Feasibility Study. The resulting *Supplemental Information Report, American River Watershed Project, California: Part-I - Main Report and Part II – Final EIS/EIR*, (March 1996) recommended a similar combination of a gravity flood detention dam at the Auburn Dam site with downstream levee work (USACE 1996). The analysis considered, but did not advance, plans for Folsom Dam improvements and a stepped release plan for Folsom Dam accompanied by downstream levee improvements. Congress recognized that levee improvements were “common” to all candidate plans in the report and that there was a Federal interest in participating in these “common features.” Thus, the American River Common Features Project was authorized in the Water Resources Development Act (WRDA) of 1996, Pub. L. No. 104-303, §101(a)(1), (1996).

In WRDA 1999, Pub. L. No. 106-53, § 366, (1999), Congress authorized improvements to Folsom Dam to manage a flood event with a peak release of 160,000 cubic feet per second (cfs) and the Folsom Dam Modification Project to modify the existing outlets to allow for higher releases earlier in flood events. At the same time, Congress also directed USACE to review

modifications to the flood storage of Folsom Dam to provide additional flood damage reduction at Folsom Dam. The Folsom Dam Raise Project was subsequently authorized by Congress in 2003 through the Energy and Water Development Appropriations Act 2004, Pub. L. No. 108-137, § 129, 121 (2003). Construction of the Joint Federal Project, an auxiliary spillway to Folsom Dam (in lieu of modifying the existing dam outlets), was completed in 2017, and the maximum release of 160,000 cfs is the design standard for all levee improvements downstream on the American River.

Ongoing construction of the ARCF project features authorized in WRDA 1996 and WRDA 1999, in addition to levee performance during high flow storm events in 1997 indicated that additional levee improvements were needed on the American River and Sacramento River downstream of the confluence with the American River to address levee under seepage and levee erosion issues, and to truly capture the benefits of the Folsom Dam projects. These levee improvements would address erosion concerns on the American River and seepage, stability, erosion, and height deficiencies on the Sacramento River below the confluence with the American River. As the full extent of these levee problems became apparent, additional reevaluation studies were needed for the two hydrological basins comprising the city of Sacramento: American River North and American River South. These reevaluation studies coalesced in the ARCF GRR and its accompanying EIS/EIR (USACE 2016).

The 2016 GRR FEIS/EIR analyzed several alternatives to address these newly discovered concerns on the lower American and Sacramento Rivers to protect the Sacramento metropolitan area from catastrophic flooding. In addition to the No Action Alternative, the FEIS/EIR examined environmental effects associated with Alternative 1 – Improve Levees and Alternative 2 – Improve Levees and Widen the Sacramento Weir and Bypass, which was the Recommended Plan during the study and became the authorized Project. Upon Congressional authorization, geotechnical investigations and hydraulic modeling were funded to inform the design. Data collection led to the design refinements presented in this SEIS/SEIR to address remaining flood risk to the greater Sacramento area. Additionally, this SEIS/SEIR captures the complexities of special-status species habitat mitigation required for both the American and Sacramento Rivers by proposing to develop and construct new mitigation sites.

## **1.4 Project Authority**

Authority for the American River Common Features, 2016 Flood Risk Management Project, Sacramento, California, is provided by Section 1401(2)(7) of the Water Resources Development Act of 2016, Public Law 114-322. Appropriations were provided under the Construction heading, Title N, Division B of the Bipartisan Budget Act of 2018, Public Law 115-123 enacted February 9, 2018.

## **1.5 Project Purpose and Need for Action**

The Sacramento metropolitan area is one of the most at-risk areas for flooding in the United States with an unacceptably high risk from levee failure that threatens the public safety, property, and critical infrastructure throughout the study area. There is a high probability that flood flows in the American and Sacramento Rivers would stress the network of levees protecting the system

to the point that levees could fail. There is a need to reduce the overall flood risk within the study area by addressing the failure risks due to seepage and erosion. The project features in this document are pieces of a broader flood risk reduction system that includes Folsom Dam, the ability to pass the amount of water that is released from Folsom, and levee improvements in the Natomas Basin. Further study by USACE and the NFS, since the initial 2016 GRR FEIS/EIR, resulted in refinements to the initial flood risk reduction designs in the ARCF 2016 Project, which would result in decreased risk of levee failure due to erosion, seepage, and levee instability. Additionally, construction of previous, current, and future ARCF 2016 Project components have resulted and will result in environmental impacts requiring habitat mitigation.

## **1.6 CEQA Project Objectives**

Under CEQA, the CVFPB's objectives were identified in the 2016 ARCF GRR FEIS/EIR and are unchanged in this SEIS/SEIR. The objectives are as follows:

- Reduce the chance of flooding and damages, once flooding occurs, and improve public safety, preparedness, and emergency response.
- Reduce maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes.
- Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species.
- Implement technically feasible and cost-effective solutions are implemented to maximize the flood risk reduction benefits given the practical limitations of applicable funding sources.

## **1.7 Environmental Regulatory Framework and Authority**

### **1.7.1 National Environmental Policy Act**

NEPA provides an interdisciplinary framework for Federal agencies to develop information that will help them to take environmental factors into account in their decision-making. To comply with NEPA, an EIS is required whenever a proposed major Federal action (e.g., a proposal for legislation or an activity financed, assisted, conducted, or approved by a Federal agency) would result in significant effects on the quality of the natural and human environment (42 U.S.C. § 4332[2][C]; 40 C.F.R. § 1508.18[a]). In addition, 40 C.F.R. § 1502.9 contains guidance on Draft, Final and Supplemental Statements. The language states that agencies preparing a supplemental environmental impact statement shall:

1. Prepare supplements to either draft or final environmental impact statements if a major Federal action remains to occur; and
2. The agency makes substantial changes to the proposed action that are relevant to environmental concerns; or
3. There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

On May 1, 2024, the Council on Environmental Quality (CEQ) published a final rule on Phase II of the NEPA regulation revisions. Phase II updated its regulations, 40 C.F.R. pts. 1500–1508, implementing the NEPA, 42 U.S.C. 4321 et seq. However, part 1506.12 lists that "the regulations in this subchapter apply to any NEPA process begun after July 1, 2024". The NEPA process for this SEIS/SEIR began with scoping in November of 2022 so the new updates in Phase II were not incorporated into this SEIS/SEIR. Phase I of the NEPA regulation revisions, published April 20, 2022, updates were used in writing this SEIS.

The CEQ has rescinded the NEPA regulations at 40 C.F.R. Parts 1500-1508. However, the preparation of this NEPA began, and the draft EIS/EIR was circulated for public review prior to the regulations being rescinded. As such, this EIS/EIR has followed the 2023 NEPA regulations that were previously in effect.

## **1.7.2 California Environmental Quality Act**

According to the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064[f][1]), preparation of an EIR is required whenever a project may result in a significant environmental impact. An EIR is an informational document used to inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate, reduce, or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

CEQA requires that State and local government agencies consider the environmental effects of projects over which they have discretionary authority before taking action on those projects (California Public Resources Code [PRC] Section 21000 et seq.). CEQA also requires that each public agency avoid or reduce to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. If a project would result in significant environmental impacts that cannot be feasibly mitigated to less-than-significant levels, the project can still be approved, but the lead agency’s decision makers must issue a “statement of overriding considerations” explaining in writing the specific economic, social, or other considerations that they find, based on substantial evidence, make those significant and unavoidable effects acceptable.

## **1.7.3 State and Local Planning**

Many State and local plans and zoning regulations govern activities within the project area of the 2016 ARCF GRR FEIS/EIR. These plans and regulations are described in Section 1.5.3, State and Local Planning, in the 2016 ARCF GRR FEIS/EIR; those applicable to the Proposed Action were taken into consideration during preparation of this SEIS/SEIR and are listed below:

- City of Sacramento 2035 General Plan
- Sacramento County General Plan of 2005 to 2030
- Sacramento County Zoning Ordinance
- Sacramento County Tree Ordinance
- Sacramento City Zoning Ordinance

- The Sacramento County Local Hazard Mitigation Plan
- American River Parkway Plan
- Central Valley Flood Protection Plan
- Delta Plan

# Chapter 2. Intended Uses of this Document

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Like the original 2016 ARCF GRR FEIS/EIR, this SEIS/SEIR is a public document. This SEIS/SEIR describes proposed refinements made to the Proposed Action of the 2016 ARCF GRR FEIS/EIR and evaluates resulting environmental impacts that either were not fully analyzed in the 2016 ARCF GRR FEIS/EIR and subsequent supplemental NEPA and CEQA project documents or are new environmental impacts arising from proposed changes in project design and habitat mitigation. Not all resources or areas of concern are discussed in detail in this document, as most potential impacts and the means to avoid, minimize, and mitigate them were covered in depth in the 2016 ARCF GRR FEIS/EIR. The public was notified of this SEIS/SEIR, and a copy of the public review draft was made available for comments during a 45-day comment period, which was extended to 60 days. Public comments received during the public review period have been incorporated into the Final SEIS/SEIR as necessary and are presented in a separate appendix (Appendix I).

USACE has published this Final SEIS/SEIR, and will consider any additional comments, and sign a Record of Decision (ROD) for the SEIS. The ROD is a written, public record explaining why USACE chooses a particular course of action. The selected action and any practicable mitigation measures will be identified in the ROD.

California Code of Regulations, Title 14 § 15090 of CEQA requires that an EIR be certified so that State agencies can issue their approvals. Title 14 § 15124(d)(B) of CEQA states that the intended use section of the EIR shall include a list of permits, as well as a list of expected agencies to use the document.

The project will require permitting or approvals under Section 7 of the Endangered Species Act, Section 401 of the Clean Water Act, and Section 106 of the National Historic Preservation Act. CVFPB encroachment permits, and State Lands Commission leases will also be required for some project components.

CVFPB (the CEQA lead agency), and DWR and SAFCA, (two key responsible agencies) are expected to use the SEIS/SEIR document in their roles as project sponsors. Other agencies expected to use the SEIS/SEIR to support permitting or funding actions include, but are not limited to:

- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- State Historic Preservation Officer (SHPO)
- National Park Service (NPS)
- Central Valley Regional Water Quality Control Board (CVRWQCB)
- Bay Area Air Quality Management District (BAAQMD)

- Sacramento Metropolitan Air Quality Management District (SMAQMD)
- State Lands Commission
- Delta Stewardship Council

## **2.1 Resources Relied on in Preparation of the SEIS/SEIR**

### **2.1.1 Related Documents and Resources**

The following documents were used in the preparation of this SEIS/SEIR and are incorporated by reference:

- December 2015, revised May 2016, Final Environmental Impact Statement/Environmental Impact Report on the American River Water Shed Common Features, General Reevaluation Report, Sacramento CA (USACE 2015).
- July 2016, Final Environmental Impact Report, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project. Prepared for SAFCA by GEI Consultants (GEI Consultants and SAFCA 2016).
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy (USACE 2016)
- February 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF Seepage Stability Berm, Reach D Contract 1 (USACE, SAFCA, and CVFPB 2019a).
- June 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site (USACE, SAFCA, and CVFPB 2019b).
- November 2019, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 1 (SREL C1) (USACE and CVFPB 2019).
- October 2020, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 2 (SREL C2) (USACE and CVFPB 2020).
- June 2021, Final Supplemental Environmental Assessment/ Supplemental Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 1 (USACE 2021).
- August 2021, Final Supplemental Environmental Impact Statement/Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento Weir Widening (USACE and CVFPB 2021a).
- September 2021, Supplemental Environmental Impact Statement/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, American River Erosion Contract 2 (USACE and CVFPB 2021d).

- October 2021, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 3 (SREL C3) (USACE and CVFPB 2021b).
- October 2021, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, American River Erosion Contract 1 (USACE and CVFPB 2021c).
- October 2022, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 4 (SREL C4) (USACE and CVFPB 2022a).
- October 2022, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2 (USACE 2022b).
- October 2022, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, American River Erosion Contract 3A (USACE and CVFPB 2022b).

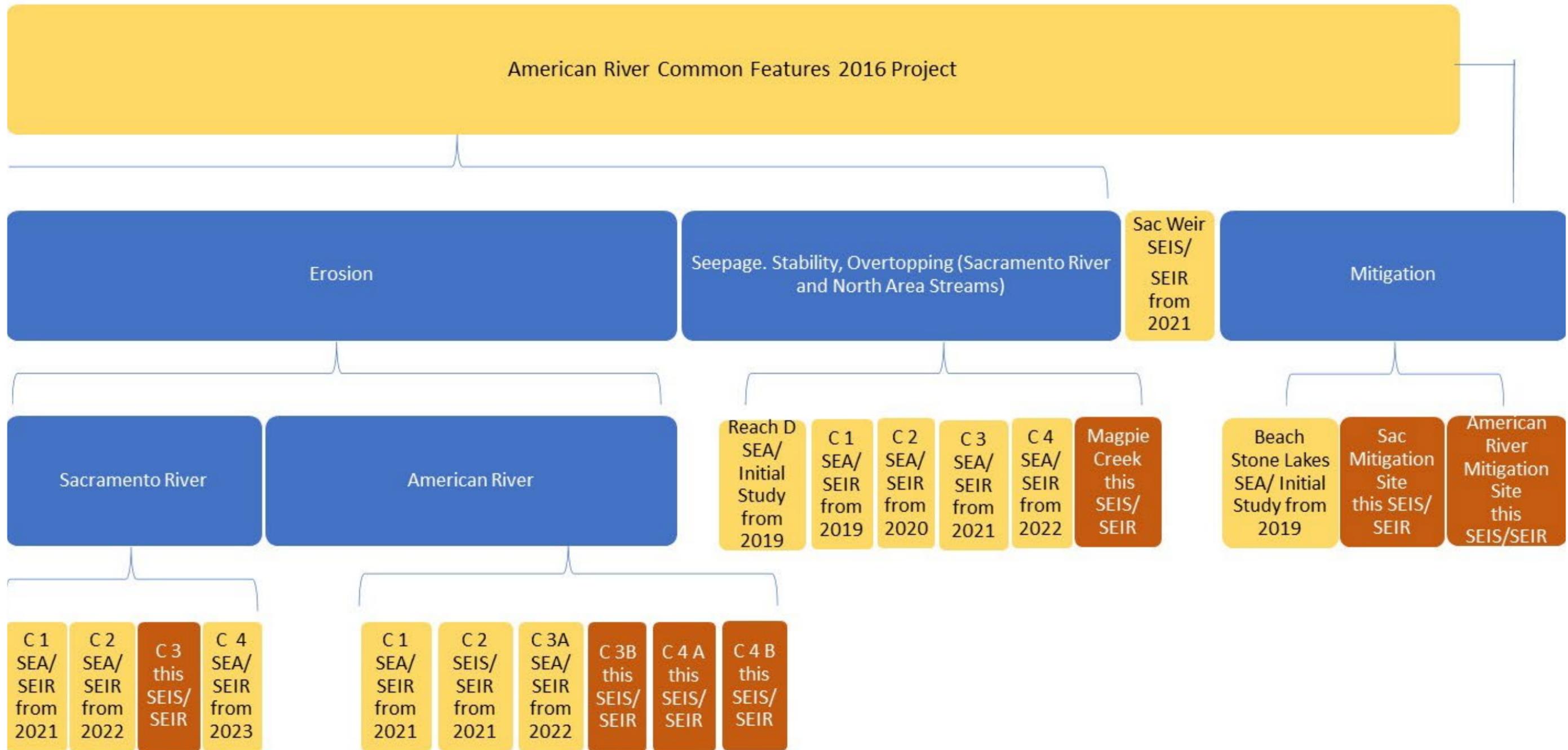


Figure 2.1.1-1 Projects within the ARCF 2016 Project

## 2.2 Application of NEPA and CEQA Principles and Terminology

This section covers phrases that have equivalent meanings between NEPA and CEQA. NEPA and CEQA are similar in that both laws require the preparation of an environmental document to evaluate the environmental effects of proposed activities. However, there are several differences between the two regarding terminology, procedures, content of the environmental documents, and substantive mandates to protect the environment. NEPA language is primarily used in this document but can be interchanged with CEQA language.

**Table 2.2-1 Terminology of NEPA and CEQA for Common Concepts**

NEPA Term	Correlating CEQA Term
Lead Agency	Lead Agency
Environmental Impact Statement	Environmental Impact Report
Record of Decision	Findings
Proposed Action	Proposed Project
Project Purpose	Project Objectives
No Action Alternative*	N/A
No Construction Alternative	No Project Alternative
Affected Environment	Environmental Setting
Effect	Impact
Negligible	Less than Significant
Minor	Less than Significant
Moderate	Less than Significant
Major	Less than Significant
Significant and Unavoidable	Significant and Unavoidable
No Impact or No Effect	No Impact
Beneficial	Beneficial
Direct	Direct
Indirect	Indirect
Short-term	Short-term
Medium-term	Medium-term
Long-term	Long-term

\*In the case of this supplemental NEPA documentation No Action would result in the previously approved alternative to be constructed.

## 2.3 Community Outreach, Agency Coordination, and Areas of Known Controversy

Public involvement activities associated with the SEIS/SEIR include public scoping meetings, Native American Tribe and agency meetings, distribution of the draft and final SEIS/SEIR for public review and comment; and public meetings to receive comments on the draft SEIS/SEIR. The CVFPB published a Notice of Preparation at the very start of the ARCF project on February

27, 2008. USACE published the Notice of Intent (NOI) to prepare the ARCF SEIS/SEIR in the Federal Register (Vol. 87, No. 194) on October 7, 2022, with an update posted in the Federal Register (Vol. 87, No. 199) on October 17, 2022. USACE and CVFPB held two public scoping meetings on November 2, 2022, and November 30, 2022, to present information to the public and to explain how to submit public comments on the scope of the SEIS/SEIR. Appendix A contains the NOI, the comment letters received during scoping, and the agency responses to comments.

The 2016 ARCF GRR FEIS/EIR identified several areas of controversy based on comments received during the public scoping period and the history of the NEPA and CEQA processes undertaken by USACE, CVFPB, and SAFCA. Areas of controversy that are applicable to the Proposed Action analyzed in this SEIS/SEIR, include:

- Construction-related impacts on biological resources, especially endangered species and their habitats
- Vegetation and tree removal, primarily on and adjacent to levees
- Effects to cultural resources and resources significant to indigenous tribes
- Effects to recreational areas and facilities

Public scoping for this SEIS/SEIR was conducted in November 2022 and resulted in 69 categorized comments, one-third of which were related to habitat mitigation concerns. As discussed in detail in Chapter 7 and Appendix A, Scoping Report, habitat mitigation in the American River Parkway as proposed for the ARMS (located at River Mile 1.3 and previously referred to as Urrutia) has emerged as and continues to be an area of controversy.

Resolution of known areas of controversy identified by the scoping process have resulted in further coordination with the following entities and agencies:

- U.S. Environmental Protection Agency
- County of Sacramento, Regional Parks
- Cordova Recreation and Park District
- Sacramento Metropolitan Air Quality Management District
- United Auburn Indian Community

The draft SEIS/SEIR was circulated for public review and made available on the USACE, Sacramento District and CVFPB websites. Typically, USACE would provide hard copies of the SEIR/SEIR to public libraries, however, local public libraries are now discouraging this and requesting electronic files. USACE and CVFPB made hard copies available upon request. A link to the SEIS/SEIR was sent to interested parties, local residents, and to the agencies and elected officials listed in Section 7.1 of the SEIS/SEIR, and a newspaper notice was posted that included a link to the SEIS/SEIR. Public meetings will be held during the review period (December 22, 2023 – February 5, 2024, extended to February 23, 2024) to provide additional opportunities for comments on the draft SEIS/SEIR. Meetings were virtual, and the times were included on the USACE website at [sacleveeupgrades.com](http://sacleveeupgrades.com):

- January 10, 2024
- January 16, 2024

At the meetings, verbal comments were solicited and a transcript maintained, and written comments were accepted in the meeting chat. Additionally, written comments were accepted through mail and electronic mail. All comments received during the public review period have been considered, and responses are provided in the final SEIS/SEIR. Public comments and the responses to them are provided in Appendix I to this Final SEIS/SEIR.

The Final SEIS/SEIR will be circulated for public review. The Notice of Availability (NOA) will be published in the Federal Register. The Final SEIS/SEIR will be made available on the USACE Sacramento District and CVFPB websites. Hard copies of the final SEIS/SEIR will be available upon request and electronic versions will be sent to the Sacramento Public Library, with a hard copy available at the Central Library, located at 828 I St., Sacramento, California 95814.

## **2.4 Organization of the SEIS/SEIR**

The content and format of this SEIS/SEIR are designed to meet NEPA requirements as set forth by the Council on Environmental Quality (CEQ) and USACE's NEPA policy and guidance, as well as CEQA and the State CEQA Guidelines. The SEIS/SEIR is organized as follows:

- The Executive Summary summarizes the purpose and intended uses of the SEIS/SEIR, lead agencies, project location, project background and phasing, need for action, and project purpose/objectives; presents an overview of the proposed alternatives under consideration, as well as the major conclusions of the environmental analysis; documents the known areas of controversy and issues to be resolved; and ends with a summary table that lists the significant environmental impacts and mitigation measures for the alternatives under consideration.
- Chapter 1, "Introduction," briefly explains the NEPA/CEQA processes; lists the lead, cooperating, and responsible agencies that may have discretionary authority over the project, including NFS; specifies the underlying project purpose/objectives and need for action, to which the lead agencies are responding in considering the proposed project and project alternatives; summarizes required permits, approvals, and authorizations; provides information on public participation; and outlines the contents and organization of the SEIS/SEIR.
- Chapter 2, "Intended Uses of this Document" briefly presents the application of NEPA and CEQA to the document, resources used in the preparation of the document, document format and organization, and relationship to other documents.
- Chapter 3, "Description of Project Alternatives," presents the proposed alternatives under consideration. This chapter includes a description of the proposed action/proposed project that meets NEPA and CEQA requirements and describes the project components for each action alternative as well as the No-Action Alternative. Mitigation alternatives and the sites that are currently being considered for future mitigation are also discussed, along with the potential to purchase mitigation credits. This chapter also describes alternatives considered but eliminated from further consideration and provides a summary matrix that compares the environmental consequences of the alternatives under consideration.

- Chapter 4, “Affected Environment and Environmental Consequences” describes the baseline or existing environmental and regulatory conditions, provides an analysis of the impacts of each project alternative under consideration, and identifies available and feasible mitigation measures that would be used to avoid or eliminate significant impacts or reduce them to a less-than-significant level, where feasible. In addition, compensation is discussed for significant, adverse effects that cannot be reduced to a less-than-significant level with available and feasible mitigation measures. This chapter summarizes more detailed analysis that is included in Appendix B.
- Chapter 5, “Cumulative and Growth-Inducing Impacts and Other Statutory Requirements,” describes the cumulative impacts of the project when combined with other past, present, and reasonably foreseeable future projects within the area. In addition, it analyzes the growth-inducing impacts of the proposed action. The remainder of this chapter includes the following requirements of NEPA and CEQA that are not addressed elsewhere in this SEIS/SEIR: relationship between short-term uses of the environment and long-term productivity, significant and unavoidable environmental impacts, and irreversible and irretrievable commitments of resources.
- Chapter 6, “Compliance with Federal and State Laws and Regulations,” summarizes the Federal and State laws and regulations that apply to the project and describes the project’s approach to compliance.
- Chapter 7, “Public Involvement and Coordination,” summarizes public involvement activities under NEPA and CEQA; Native American consultation; and coordination and with other Federal, State, regional, and local agencies. A list of organizations and individuals receiving a copy and/or notice of this SEIS/SEIR is also included.
- Chapter 8, “Submitted Alternatives, Information, and Analyses,” provides information on alternatives provided during scoping.
- Chapter 9, “Report Preparers” lists individuals who were involved in preparing this SEIS/SEIR.
- Chapter 10, “References,” provides a bibliography of sources cited in this SEIS/SEIR.

# Chapter 3. Description of Project Alternatives

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## 3.1 Introduction

This chapter describes and compares the alternatives evaluated in detail in this SEIS/SEIR, including the Proposed Action (“Proposed Project” under CEQA) and the required NEPA No Action Alternative and the CEQA No Project Alternative. Action Alternatives that were considered, but rejected are identified and are not carried forward for analysis. The discussion of each Action Alternative includes measures to avoid or substantially lessen any of the significant or potentially significant adverse environmental effects of the Proposed Action, while still meeting most, if not all, of the basic project objectives.

## 3.2 Requirements for Alternatives Development, Selection, and Evaluation

NEPA and CEQA require consideration of the potential effects of a reasonable range of action alternatives that could feasibly attain most of a project’s basic objectives and accomplish the specified project purpose and need, while avoiding and/or substantially lessening potentially significant and significant environmental impacts of the Proposed Action. NEPA also requires consideration of future conditions under the No Action Alternative, as a basis of comparison with the Action Alternatives. CEQA requires consideration of a No Project Alternative where the project is not constructed. The following sections identify the purpose, need, and objectives, and summarize the requirements for developing alternatives under NEPA and CEQA.

### 3.2.1 National Environmental Policy Act

NEPA requires that all alternatives, including the Proposed Action, be evaluated at a comparable level of detail (Title 40, CFR Part 1502.14[b]). Similarly, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40, CFR Part 1502.14) require the range of reasonable alternatives in an EIS be objectively evaluated at an equal level of detail. Alternatives that cannot reasonably meet the project purpose and need do not require detailed analysis and may be considered and rejected. The CEQ has rescinded the NEPA regulations at 40 C.F.R. Parts 1500-1508. However, the preparation of this NEPA began, and the draft SEIS was circulated for public review prior to the regulations being rescinded. As such, this SEIS used Phase I of the 2023 NEPA implementing regulation revisions, see section 1.6.1 “National Environmental Policy Act” for more details.

### 3.2.2 California Environmental Quality Act

CEQA requires the lead agency to consider alternatives that would avoid or substantially lessen one or more of the significant impacts of the proposed project. The State CEQA Guidelines state that an EIR needs to describe and evaluate alternatives that could feasibly accomplish most of

the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (State CEQA Guidelines Section 15126.6[c]). An EIR must include a reasonable range of alternatives necessary to permit a reasoned choice and to foster informed decision-making and informed public participation (State CEQA Guidelines Section 15126.6[f]). Consideration of alternatives focuses on those that can eliminate significant environmental impacts or reduce impacts to less-than-significant levels; alternatives considered in this context may include those that are more costly and those that could impede, to some degree, the attainment of the project objectives (State CEQA Guidelines Section 15126.6[b]).

## **3.3 Alternatives Development and Screening**

### **3.3.1 Initial Alternatives Development and Screening**

The ARCF Final GRR described four planning objectives including reducing the risk of flooding in the study area, reducing the impacts to critical infrastructure in the study area, encouraging wise use of the floodplain, and educating the public about ongoing residual risk. A wide variety of individual management measures were developed to meet one or multiple objectives. Measures fell within the following categories: reduce flood stages, address seepage and under seepage, levee stability, levee overtopping, erosion, and non-structural measures. Each measure was evaluated and screened based on the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G)* criteria: completeness, efficiency, effectiveness, implementation potential and acceptability. Formulation strategies were developed to combine these measures into alternative plans. Section 3.9 Screening of Measures of the GRR includes the details of plan formulation with rationale given for either retaining or dropping measures. Multiple iterations of evaluation, measure combination and screening led to development of a final array of alternatives, from which the Recommended Plan.

The 2016 ARCF GRR FEIS/EIR, which this SEIS/SEIR supplements, considered and rejected the following alternatives:

- Upstream Storage (for Flood Control) on the American River (Auburn Dam)
- Transitory Storage in Upstream Basins
- Yolo Bypass Improvements
- Reoperation of Upstream Reservoirs
- Sacramento River I Street Bridge Diversion Structure
- Non-Structural Measures

Upstream storage on the American River does not address the high frequency flood risk associated with poorly performing levees, nor does it reduce the risk for the Sacramento River study area. The I-Street Diversion Structure requires inefficient implementation and would leave densely populated areas of Sacramento at risk of flooding after project construction. Non-structural measures reduce the consequences of flooding, but do not reduce probability of flooding or reduce risk of flooding. None of these alternatives fully met the project objectives, had high associated costs, and caused significant environmental effects, such as requiring extensive relocation of residents resulting in impacts to at-risk communities or requiring project implementation on sensitive habitats impacting listed species. Therefore, these alternatives are no longer discussed in detail.

Two Action Alternatives were evaluated in detail, along with a No Action Alternative: GRR Alternative 1, “Improve Levees,” and GRR Alternative 2, “Sacramento Bypass and Improve Levees.” Alternative 2 was the selected alternative or Recommended Plan. Both GRR Alternative 1 and GRR Alternative 2 included similar erosion protection improvements on the LAR and the Sacramento River, and flood risk reduction improvements at MCP. On the LAR and Sacramento River, Alternatives 1 and 2 included constructing bank protection or launchable rock trench. At the MCP, both Alternatives 1 and 2 included raising 2,100 linear feet of levee, constructing 1,000 linear feet of new levee, installing floodgates at two properties, and acquiring property to create a flood detention basin. While the ARCF GRR FEIS/EIR discussed habitat mitigation requirements for the Recommended Plan, it did not analyze the impacts associated with constructing habitat restoration sites to mitigate for project impacts.

The ROD for the ARCF 2016 Project was signed by the Assistant Secretary of the Army (Civil Works) on August 29, 2016. After the ARCF 2016 Project was authorized by Congress in 2016, USACE began detailed design for these erosion protection and levee improvements in the Sacramento metropolitan area. Projects were prioritized based upon their constructability and sequenced to provide flood risk reduction benefits to communities with highest life safety risk and most costly flood-related damages. Several of these projects are under construction currently, including the Sacramento Weir and Bypass Widening Project, American River Erosion Project and Sacramento River East Levee Seepage, Stability and Overtopping Project.

USACE and CVFPB have prepared several supplemental NEPA and CEQA documents covering refinements in the design for the ARCF 2016 Project (see Section 2.1.1). For example, the Supplemental EIS/EIR for the Sacramento Weir and Bypass Widening Project which included a proposed action with a passive weir (the existing weir has gates that must be manually opened) and a higher weir elevation alternative using stop logs to maintain the existing top-of-weir elevation for the passive weir. The SEIS/EIR was certified in accordance with CEQA on August 27<sup>th</sup>, 2021, and the ROD was signed September 2021.

Upon Congressional authorization, geotechnical investigations and hydraulic modeling were funded to inform the design for multiple project components. Data collection led to the design refinements presented in this SEIS/SEIR to address remaining flood risk to the greater Sacramento area. These refinements to the following projects are presented below: MCP, American River Erosion Contracts 3B, 4A, and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network.

### **3.3.1.1 *Magpie Creek Project***

During the detailed engineering and design efforts for the MCP improvements, substantial hydraulic impacts were identified for the flood risk management improvements identified in the ARCF GRR FEIS/EIR. To reduce these hydraulic effects, the refinements substantially changed the location of improvements, and efforts to reduce hydraulic impacts led to increased impacts on riparian habitat due to the need to improve the geometry of the MCDC downstream of the MCP improvements as proposed in the ARCF GRR FEIS/EIR. The design refinements to reduce the hydraulic impacts of Alternative 2 led to the Proposed Action for the MCP project component that is analyzed in this SEIS/SEIR.

### **3.3.1.2 American River Erosion Contracts 3B and 4B**

The ARCF 2016 Project covers 11 miles of erosion protection work along the American River as well as levee erosion and stability, and seepage and under seepage improvements along various portions of the American and Sacramento Rivers (USACE 2016). USACE held an expert opinion elicitation (EOE) in 2019 to refine the design of the project. Based on the results of the EOE and designs along the American River were refined to incorporate alternative erosion protection measures to minimize impacts to heritage oaks, riparian habitat, and to create higher-quality onsite mitigation. The refined designs are analyzed as part of the Proposed Action in this SEIS/SEIR as American River Erosion Contract 3B North and South, and 4B.

### **3.3.1.3 Sacramento River Erosion Contract 3**

The ARCF 2016 Project included bank protection and launchable rock trench improvements along 2.8 miles of the Sacramento River (USACE 2016). Design efforts have reduced the area of bank protection and resulted in refinements (including tiebacks, planting benches, and launchable rock toes) that provide improved habitat restoration, and reduced impacts on trees and riparian vegetation. These refinements have been incorporated into the Proposed Action Alternative for Sacramento River Erosion Contract 3 analyzed in this SEIS/SEIR.

### **3.3.1.4 American River Erosion Contract 4A, ARMS, SRMS, and Piezometer Network**

These project components were not previously analyzed in the ARCF GRR FEIS/EIR. Except for the Piezometer Network, which has minimal environmental effects and would be installed within the construction footprint previously identified for the ARCF GRR FEIS/EIR, additional alternatives were developed to reduce or avoid the effects of these project components. For the American River Erosion Contract 4A, the alternative designs include a landside berm (to avoid impacting recreational facilities in the American River Parkway) and various design refinements that would reroute the Jedediah Smith Memorial Trail to reduce effects on this key recreational resource. For the ARMS, alternatives were developed to retain a portion of the existing manmade pond as well as remove the pond entirely. These alternatives were considered to reduce impacts related to air quality, greenhouse gas (GHG) emissions, and transportation (by reducing material hauling), to maintain the existing visual character of the area, and to reduce impacts related to use of the manmade pond by migratory birds, particularly diving ducks (CEQA-only Alternative). SRMS alternatives carried forward for detailed consideration included purchase of mitigation credits and/or financial support of projects that would provide habitat mitigating for the habitat loss associated with project improvements. These non-construction alternatives would avoid the construction-related impacts of the SRMS project component. An alternative site for the SRMS was also considered at Watermark Farms on the right bank of the Sacramento River in Yolo County and is analyzed in this SEIS/SEIR.

The Proposed Action and Action Alternatives analyzed in this SEIS/SEIR represent both new alternative components and a substantial refinement of the ARCF GRR FEIS/EIR Alternative 2 or Recommended Plan that became the authorized Project. These refinements would reduce or avoid several of the significant impacts identified in the ARCF GRR FEIS/FEIR, including hydraulic impacts, impacts on riparian vegetation, and heritage oaks. Table 3.3.4-1 presents a summary of the alternatives that have been considered for the project components.

### **3.3.2 Alternatives Considered, but Rejected from Detailed Analysis**

MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4, ARMS, and SRMS all had alternative activities and/or locations that had been considered but rejected between completion of the 2016 ARCF GRR FEIS/EIR and this SEIS/SEIR. The alternatives considered and rejected are discussed below.

#### **3.3.2.1 *Magpie Creek Project***

For the MCP, an alternative that was considered, but later rejected was similar to the Proposed Action described in this document with the exception that it would have raised the levee an additional 3 feet of freeboard over the 1 in 200 Annual Exceedance Probability (AEP) elevation. If this alternative had been chosen and built, there would have been a reduction in the overtopping and flanking that could cause localized flooding along Raley Boulevard. However, when elevation analysis was performed at the Vinci Avenue Bridge and the Dry Creek Road Bridge, USACE found that both bridges were below the elevation needed to reach the 1 in 200 AEP, creating a flow obstruction and increasing the freeboard by 3 feet. The possibility of making design refinements to both bridges was considered and rejected because the project does not have the congressional authority to alter the bridges. This new flood risk elevation and lack of congressional authority to alter the bridges resulted in the rejection of this alternative.

#### **3.3.2.2 *American River Erosion Contract 3B North and South, and 4B***

For American River Erosion Contract 3B North and South, three alternatives were initially considered but rejected from detailed consideration under NEPA and CEQA due to not meeting environmental or flood risk reduction needs, and additional alternative designs were considered and rejected as designs were refined.

Erosion protection designs were developed incrementally with key milestones at the 10%, 35%, 65%, 95%, and 100% design plans. The intent of each milestone was to provide the project partners with an opportunity to review and comment on the design. Each subsequent submittal adds additional detail to the design, in addition to addressing comments from previous submittals. American River Erosion contract 3B was developed from the initial alternative selection to its current design working with multi-disciplinary and multi-agency stakeholder groups. In addition to these groups, the designs were also reviewed by the USACE Risk Cadre to ensure proposed design conditions met project risk reduction objectives, internal USACE reviews for consistency with design standards and regulatory requirements.

Initially, designs included removing the material that form the islands upstream of Howe Avenue to increase channel capacity that would address stage impacts from the placement of erosion protection materials. This design was considered for its potential to reduce significant hydraulic impacts and to increase conveyance through the Lower American River in the area. This initial design concept also involved adding width to the riverbank to address erosion concerns and adding additional on-site mitigation habitat. The upstream work on Site 3-1 would have

remained similar to what is currently proposed in this design. Re-grading the island would have resulted in increased impacts to riparian habitat and impacts to unique habitats on the island that would have been permanently removed from the American River in that area. In addition, movement of the fill would have been costly relative to \_\_\_\_\_. Additional hydraulic modeling determined that the island did not need to be regraded for channel capacity. Since it was determined that there was no longer a significant hydraulic impact related to stage increase, this design was no longer needed. Because this alternative would have resulted in increased impacts to riparian habitat and was determined not to avoid a stage increase impact, this alternative was rejected.

Soil-filled revetment was also proposed to be placed at select areas of an existing revetment site to address potential future operations and maintenance (O&M) concerns. Use of soil-filled revetment at these locations would have increased the project footprint and was determined to result in increased impacts related to vegetation, listed species, aesthetics and recreation, and would have resulted in the removal of mitigation plantings from the previous work where soil-filled revetment would be added. Based on additional analysis, evaluation, and review the design team determined that the existing erosion protection features met flood risk objectives.

The regrading and establishment of islands in the American River as mitigation sites was screened out of alternative analysis because of the increase in hydraulic stage and negative impacts on public safety during high flow events.

Finally, grading of the south riverbank (opposite the proposed erosion protection locations on the north riverbank) was proposed to mitigate hydraulic stage impacts from Site 3-1, eliminate the need to remove material from the islands in the river, and increase inundation of a natural levee for habitat gain purposes. This alternative was initially considered because at the time it was determined that there would be a significant hydraulic impact (stage increase) without the grading. Re-grading this area would have had significant impacts to elderberries (*Sambucus* spp.), which provide habitat to the federally listed valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*). Additional hydraulic modeling determined that the area did not need to be regraded to meet flood risk objectives for stage increase at the site, so there was no longer a significant hydraulic impact. Consequently, this alternative was rejected for further analysis because it had a greater significant impact to VELB than the Proposed Action.

For more information on the development of alternatives, see Appendix G Engineering Appendix, Section 1.7.4 “Erosion Protection Design Alternatives”; Section 1.7.5 “Design Approach”. Design development, including coordination and collaboration on Contract 3B, is further described in Appendix G Section 2.5.2 “Contract 3B”.

Lower American River Erosion Contract 4B is currently in the conceptual phase. Consequently, design alternatives have not progressed enough to be rejected as infeasible by Project Partners. American River Erosion Contract 4B if focused on addressing two key erosion risks along the Lower American River. The first pertains to lone tree scour on the levee and the second is to prevent erosion from outflanking the American River Erosion Contract 3 designs. The design

process is further described in the Engineering Appendix. Due to the American River Erosion Contract 3B flanking concerns, and the proximity of the American River Erosion Contract 4B work, these two contracts are often discussed together in the remainder of the document.

### **3.3.2.3 American River Erosion Contract 4A**

For American River Erosion Contract 4A, USACE considered bank protection under the State Route 160 Bridge and the Union Pacific Railroad Bridge to reduce flood risk. Upon further investigation of utility locations, USACE rejected this alternative from detailed consideration under NEPA since placing bank protection would not be feasible because of utility conflicts in the area where the revetment would need to be placed. USACE also determined that gaining real estate access to construct in the area would likely cause substantial schedule delays, leaving the area at risk for flooding. Other alternatives that meet flood risk needs could be designed without needing real estate access directly under the Union Pacific Railroad Bridge. For these reasons, USACE rejected the option of using bank protection under the bridges.

### **3.3.2.4 American River Mitigation Site**

The NMFS Biological Opinion (BOs; NMFS NO: WCRO-2024-01347 dated March 13, 2025) is requiring that a large mitigation site(s) for salmonid habitat mitigation on the American River be constructed concurrent with erosion protection construction. Delayed mitigation construction results in increased mitigation acreage requiring additional sites and increased costs. The Sites for creating suitable salmonid habitat mitigation are limited on the American River due to 1) Reasonable and Prudent Measure (RPM) 5.e in the NMFS BO (#WCRO-2024-01347, dated March 13, 2025) for salmonids, and 2) the requirement that USACE obtain a National Park Service (NPS) consistency determination due to the river's federal designation as a National Wild and Scenic River.

USACE considered approximately eight other potential mitigation sites on the American River which were previously described in the ARCF GRR FEIS/EIR and SEIS/SEIR (USACE and CVFPB 2021d), to create fish habitat side channels. However, those sites conflicted with the locations of ongoing projects being implemented by USACE, and the Bureau of Reclamation (BOR). USACE discussed planting native vegetation adjacent to the ongoing projects; however, this alternative was rejected by NMFS. The previously proposed Rossmoor (26.5 acres) and Arden Pond (27.6 acres) sites have insufficient project lands to fully address salmonid mitigation needs and are heavily used for recreation creating public and local agency concerns. (USACE and CVFPB 2021d). USACE has coordinated with the Sacramento County Department of Regional Parks (County Parks) to identify potential sites for salmonid habitat; however, additional off-site mitigation or purchasing mitigation credits would still be required to address project impacts.

The County Parks (Parks 2022) proposed an incomplete alternative during the scoping period that is similar to the Proposed Action, except that the design would retain a portion of the existing man-made pond, partially reducing the need for fill material to create riparian topography and reducing the transportation, air quality, and GHG emissions impacts. This pond-retention alternative has been rejected from further consideration under NEPA; it is however, being carried forward for consideration as Alternative 4a under CEQA. For CEQA-purposes,

including a pond on the ARMS property under Alternative 4a would require a minimum of 42 acres (including the 30-acre pond) on the 120-acre property.

The pond-retention alternative was rejected from detailed consideration under NEPA because it would not meet the remaining VELB and salmonid mitigation requirements onsite, forcing the project to identify and pursue another offsite mitigation. Neither the ARCF 2016 Project nor the Planning Guidance Notebook (USACE Civil Works policy) provides authority for USACE to spend appropriations on recreation improvements or the long-term management of a non-life and safety feature; the pond would be considered a recreational feature since it does not meet species habitat mitigation criteria. Additionally, an existing bald eagle (*Haliaeetus leucocephalus*) nest was identified as a new constraint after Alternative 4a was developed. State and Federal laws further reduce the viability of retaining a pond as part of the alternative due to the requirement to retain and protect the nest tree and a large surrounding buffer which would exclude construction. Furthermore, there are additional costs related to building a 30-foot berm to separate the pond from the mitigation area to reduce predation by piscivorous sport fish on entrained salmon.

Alternative 4a was rejected as a viable alternative by USACE during preliminary designs. Alternative 4b was carried through 10% design and evaluated alongside other alternatives. However, USACE determined due to WRDA 2016 Project authority, USACE policy and guidance, lack of agency support, recreational conflicts, and the inability of the alternatives to meet mitigation objectives and resource agency requirements, these alternatives are rejected from NEPA analysis. They are both retained in Section 3.7 and analyzed under CEQA.

### **3.3.2.5 Sacramento River Mitigation Site**

USACE has considered numerous locations for a large mitigation site on the Sacramento River. Many of those sites were eliminated based on their location outside of NMFS preferred mitigation zone, listed in the BO. Other sites such as Elkhorn Regional Park, Upper Elkhorn 1 and 2 were rejected from detailed consideration under NEPA because they would have more significant adverse effects to existing habitat during construction than the site could provide in mitigation credits. Some sites such as North Broderick and Bees Lake were already identified by other projects to be used for mitigation, recreation, or a heritage center. Possible sites that are on the landside of a federal levee cannot be considered without requesting an amendment to the project authorization, and there are great constructability constraints with the land elevations being lower than the river elevations in areas without a Federal levee. The remaining Sacramento River Mitigation options are located at Grand Island, Watermark Farms, Sunset Pumps or through mitigation bank credit purchases; these alternatives are discussed below. Grand Island is being analyzed as part of the Proposed Action, while the other options are being analyzed as Alternatives 5a, 5b and 5c.

### **3.3.3 Alternatives Considered in Detail in the SEIS/SEIR**

The following alternatives are evaluated at an equal level of detail in this SEIS/SEIR:

- **Alternative 1:** No Action Alternative (NEPA baseline project as presently constructed / to be completed through performance of contracts underway or presently authorized)

- **Alternative 2:** Proposed Action (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, and the Piezometer Network)
- **Alternative 3** (Alternative Designs for American River Erosion Contract 4A all other contracts would remain the same as Alternative 2)
  - **Alternative 3a:** Landside Berm to Avoid Bike Trail Reroute
  - **Alternative 3b:** Permanent Bike Trail Reroute
  - **Alternative 3c:** Bike Trail Reroute and Bridge
  - **Alternative 3d:** Bike Trail Reroute Along Railroad
- **Alternative 4:** (Alternatives Designs of ARMS – CEQA-Only, all other contracts would remain the same as Alternative 2)
  - **Alternative 4a:** ARMS Pond Retention (CEQA-Only)
  - **Alternative 4b:** ARMS Pond Retention (CEQA-Only)
- **Alternative 5:** (Alternatives to SRMS, all other contracts would remain the same as Alternative 2)
  - **Alternative 5a:** Purchase Mitigation Credits
  - **Alternative 5b:** Watermark Farms Mitigation Site
  - **Alternative 5c:** Delta Smelt Bank and Sunset Pumps Mitigation Credits
- **Alternative 6:** No Project Alternative (CEQA). This alternative assumes that none of the improvements identified in the Action Alternatives would be constructed.

Between the draft and the final of the SEIS/SEIR the project team encountered additional constraints on Contract 4A, forcing the preferred alternative to change from the description included in Alternative 2, to Alternative 3c. This change is also reflected in the record of decision.

### 3.3.4 Summary of Alternatives Analysis

Table 3.3.4-1 presents a comparison of the various alternatives that have been considered for the project components as the ARCF 2016 Project has progressed.

**Table 3.3.4-1. Summary of Alternatives by Project Component**

Project Component	Alternatives considered in ARCF GRR FEIS/EIR	Alternatives Considered and Rejected in this SEIS/SEIR	Alternatives Considered in this SEIS/SEIR
MCP	<p>Alt 1: levee raise, new levee, floodgates at two properties, flood detention basin</p> <p>Alt 2: levee raise, new levee, floodgates at two properties, flood detention basin.</p>	<p>new levee, MCDC realignment and widening, flood easements, levee raise for 3 feet of freeboard</p>	<p>Alternative 1, No Action: levee raise, new levee, floodgates at two properties, flood detention basin</p> <p>Alternative 6, No Project: No additional improvements.</p> <p>Proposed Action (Alt. 2): new levee, MCDC realignment and widening, flood easements</p>
American River Erosion Contract 3B and 4B	<p>Alt 1: bank protection and launchable rock trench</p> <p>Alt 2: bank protection and launchable rock trench.</p>	<p>Removing islands to increase channel capacity</p> <p>Widening riverbank for erosion protection and habitat mitigation</p> <p>Grading of opposite bank to mitigate stage impacts</p> <p>Several intermediate design iterations as project footprint were refined to reduce riparian impacts.</p>	<p>Alternative 1, No Action: bank protection and launchable rock trench</p> <p>Alternative 6, No Project: No additional improvements.</p> <p>Proposed Action (Alt. 2): launchable rock toe, launchable trench, bank protection, tie backs, velocity and tree scour improvements</p>
American River Erosion Contract 4A	<p>Alt 1: bank protection and launchable rock trench</p> <p>Alt 2: bank protection and launchable rock trench.</p>	<p>Bank protection under SR 160 and UPRR bridges</p>	<p>Alternative 1, No Action: bank protection and launchable rock trench</p> <p>Alternative 6, No Project: No additional improvements.</p> <p>Proposed Action (Alt. 2): Waterside Berm</p> <p>Alternative 3a: Landside Berm</p> <p>Alternative 3b: Bike Trail Reroute</p> <p>Alternative 3c: Bike Trail Reroute and Bridge</p> <p>Alternative 3d: Bike Trail Reroute along Railroad</p>
Sacramento River Erosion Contract 3	<p>Alt 1: bank protection and launchable rock trench</p> <p>Alt 2: bank protection and launchable rock trench.</p>	<p>None</p>	<p>Alternative 1, No Action: bank protection and launchable rock trench</p> <p>Alternative 6, No Project: No additional improvements.</p> <p>Proposed Action (Alt. 2): launchable rock toe, bank protection, tie backs, planting benches</p>

Project Component	Alternatives considered in ARCF GRR FEIS/EIR	Alternatives Considered and Rejected in this SEIS/SEIR	Alternatives Considered in this SEIS/SEIR
ARMS	None	Side channels at 8 locations along the LAR Native vegetation plantings at project sites Rossmoor and Sailor Bar salmonid habitat restoration NEPA-only: Construct Habitat Mitigation and Retain 30 Acre Pond (Alternative 4a)	Alternative 1, No Action: No mitigation constructed Alternative 6, No Project: No additional improvements. Proposed Action (Alt. 2): Construct Habitat Mitigation at RM 1-1.6 Alternative 4a (CEQA-only): Construct Habitat Mitigation at RM 1-1.6 and Retain 30-Acre Pond Alternative 4b (CEQA-only): Construct Habitat Mitigation at RM 1-1.6 and Retain 20-Acre Pond
SRMS	None	Construct habitat mitigation at alternative sites, including Elkhorn Regional Park, Upper Elkhorn, Bees Lake, North Broderick	Alternative 1, No Action: No mitigation constructed Alternative 6, No Project: No additional improvements. Proposed Action (Alt. 2): Construct Habitat Mitigation at Grand Island Site Alternative 5a: Purchase Mitigation Credits Alternative 5b: Construct habitat mitigation at Watermarks Farm site Alternative 5c: Delta Smelt Bank and Sunset Pumps Mitigation Credits
Piezometer Network	None	None	Alternative 1, No Action: No Piezometer Network constructed Alternative 6, No Project: No additional improvements. Proposed Action (Alt. 2): Piezometer Network

Source: USACE 2023

### 3.4 Alternative 1: No Action Alternative (NEPA)

For this SEIS/SEIR, the No Action Alternative is the buildout of the authorized project. The authorized project was described in the 2016 ARCF GRR FEIS/EIR (USACE and CVFPB, 2016) and since 2016, substantial portions of the authorized project have been constructed, as described in supplemental documents including the same documents listed in section 2.1.1.

The No Action Alternative for this SEIS/SEIR therefore includes all the components of the authorized 2016 ARCF GRR FEIS/EIR Proposed Action (Alternative 2) that have been constructed as well as the remaining authorized components of the Proposed Action in the 2016 ARCF GRR FEIS/EIR that have not yet been constructed. Table 3.4-1 presents the remaining components of the authorized ARCF 2016 Project that will be constructed as part of the No Action Alternative. The description of each project component in Section 3.5 includes a table summarizing the elements of the CEQA Proposed Action for this SEIS/SEIR that are part of the NEPA No Action Alternative and elements of CEQA Proposed Action that are part of the design refinements (NEPA Proposed Action).

**Table 3.4-1. No Action Alternative Components**

2016 ARCF GRR Project Components Modified in SEIS/SEIR	Improvements included in the SEIS/SEIR No Action Alternative
MCP	The No Action Alternative includes construction of a culvert and improvements for the Sacramento Northern Bike Trail bridge, approximately 900-linear feet of new levee construction and two new floodgates on the west side of Raley Boulevard, and levee raising from Raley Boulevard to Vinci Avenue.
American River Erosion Contract 3B, 4A, and 4B	The No Action Alternative includes 11 miles of launchable trench and bank protection to be constructed on the Lower American River. The No Action Alternative also includes 65 acres of riparian habitat and VELB habitat. Certain staging areas, including staging in the American River Parkway, were authorized in prior supplemental documents and would be included in the No Action Alternative.
Sacramento River Erosion Contract 3	The No Action Alternative includes approximately 2.8 miles of bank protection to be constructed on the Sacramento River. Certain haul routes were authorized in prior supplemental documents and would also be included in the No Action Alternative.

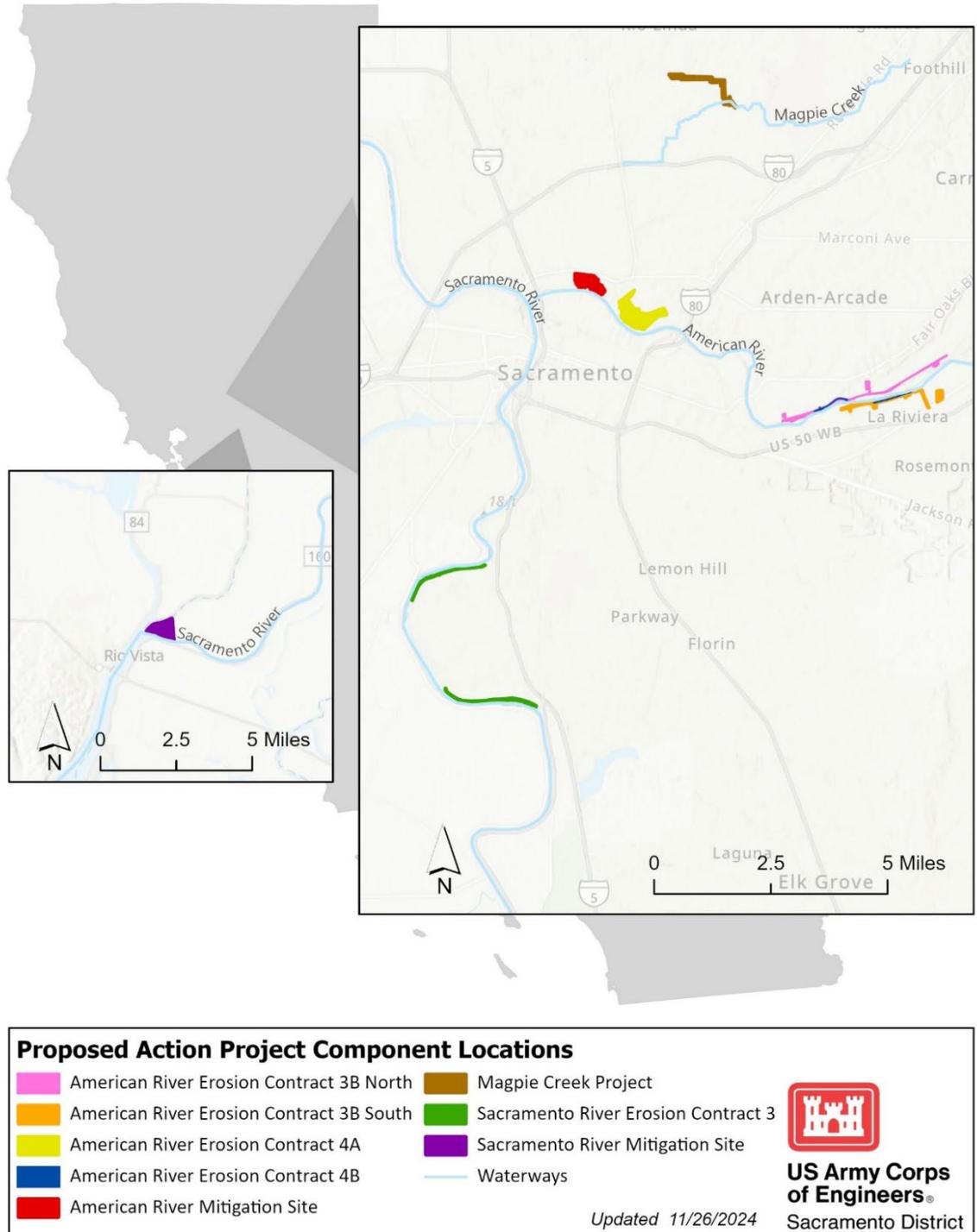
Source: USACE 2023

### 3.5 Alternative 2: Proposed Action

For this SEIS/SEIR, the CEQA Proposed Project includes all proposed activities, each of which would be constructed at different locations in the Sacramento region (Figure 3.5.1-1). The CEQA Proposed Project includes new activities, refinements, and those activities that were already discussed in the ARCF GRR FEIS/EIR but have not yet been constructed. Sections 3.5.1 through 3.5.7 provide details on what activities are being proposed.

For this SEIS/SEIR, the NEPA Proposed Action only includes the project components that are modifications or design refinements of the ARCF GRR FEIS/EIR Proposed Action. Many of the primary components of the 2016 ARCF GRR FEIS/EIR Proposed Action have been modified or had design refinements: MCP, American River Erosion Contracts 3B, 4A, and 4B, and Sacramento River Erosion Contract 3. In addition to these modifications, the ARMS, SRMS and

Piezometer Network were not included in the ARCF GRR FEIS/EIR. The modifications and design refinements comprise the NEPA Proposed Action evaluated in detail in this SEIS/SEIR. Tables have been included at the end of each project component section (sections 3.5.1 through 3.5.7), which categorize which activities from the CEQA Proposed Action are included in the NEPA Proposed Action.



**Figure 3.5.1-1. Regional Location of the Project Components**

## **3.5.1 Magpie Creek Project Improvements**

### **3.5.1.1 Features of the Proposed Action and Construction Details**

MCP improvements include a levee extension, widening and realignment of a portion of the MCDC, culverts beneath the Sacramento Northern Bike Trail, and flowage easements to allow water retention on an approximately 80-acre area upstream of Raley Boulevard.

A levee extension would be constructed crossing Raley Boulevard and extend approximately 1,000 feet to the east along the top bank of the MCDC to tie into existing high ground. Raley Boulevard would be realigned eastward and cross up and over the extended levee. The roadway grading would remain elevated as it crossed the MCDC to accommodate installation of three up to 7-foot-high by 10-foot-wide culverts (see Figure 3.5.1-2). The roadway alignment change would avoid permanently blocking the entrances of businesses during construction of the levee and culvert and would help maintain the mandatory safe stopping distance for vehicles traveling at the posted speed limit. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acres of this wetland. A gravel-surfaced maintenance road would be constructed on the north bank of the MCDC east of Raley Boulevard.

MCDC would be widened and realigned up to maximum 25-foot bottom width with an exception at Raley Boulevard to meet the width of the culverts, with 2:1 ratio slope between Raley Boulevard to Vinci Avenue (a distance of approximately 2,100 feet). The levee on the west bank of the channel would be raised to a uniform top elevation of 50.2 ft along the Raley Boulevard to Vinci Avenue segment. This segment would include a landside gravel maintenance road to the west of the levee.

Vegetation, including mature trees and shrubs, would be cleared from the bed and banks of the MCDC from Vinci Avenue to Dry Creek Road (approximately 2,700 feet). Channel slopes would also be modified in this reach to meet a 2:1 slope. Maintenance roads (12-foot wide with 2-foot shoulders) with gravel surfaces would be constructed on both sides of the top of the MCDC in this segment.

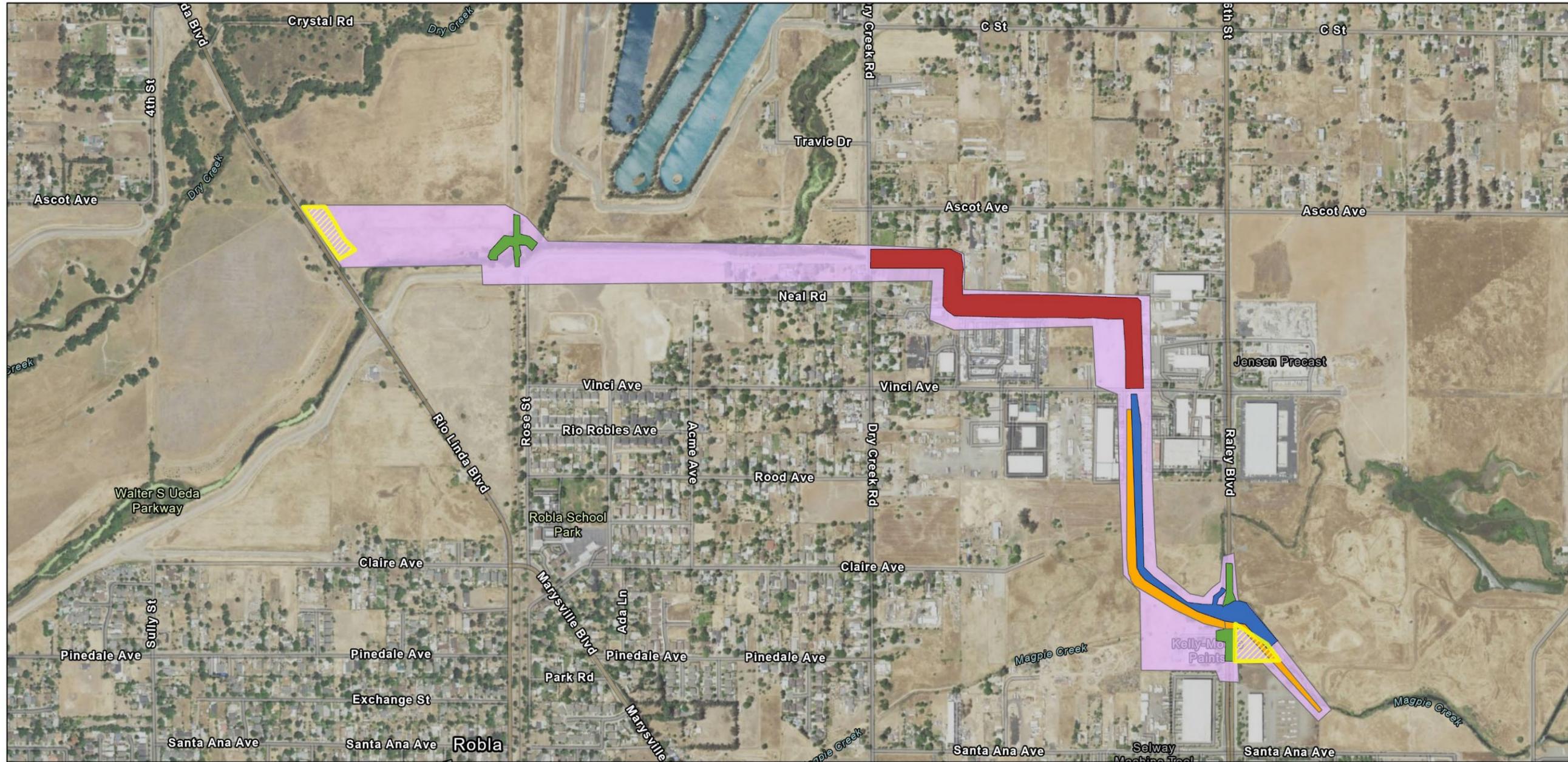
Three 5-foot-high by 5-foot-wide culverts would be constructed where Robla Creek passes under the Sacramento Northern Bike Trail. These culverts would relieve pressure on the bike trail bridge during high flow events (initially evaluated in the 2016 ARCF GRR FEIS/EIR in Section 2.3.3.) The impact of increased water surface elevation between Dry Creek Road and the North Sacramento Bike Trail Bridge were considered in the 2016 ARCF GRR FEIS/EIR.

Flowage easements would be purchased and applied to approximately 80 acres of floodplain to accommodate the difference between the design flow of 3,169 cfs and the 2,000 cfs capacity of the downstream diversion channel.

Changes to the O&M manual would be required to address the changes in the facility, as the current condition of the MCDC is under-performing the necessary waterflow for a 1 in 200 AEP highwater event. The current maintenance agreement does not require the removal of woody vegetation; a new O&M manual would include routine vegetation removal to maintain the

required channel capacity. In addition to maintenance roads along both top banks of MCDC from Vinci Avenue to Dry Creek Road (2,700 feet), the project includes the construction of a maintenance road along the landside toe of the levee from Raley Boulevard to Vinci Avenue (2,100 feet) Figure 3.5.1-2.

Several public utilities would be temporarily or permanently realigned. A sewer line made of vitrified clay pipe that runs near the east edge of Raley Boulevard and goes under the current MCDC would need to be temporarily rerouted and then permanently realigned to prevent damage due to its proximity to the new culvert construction. A water main located in the same area as the sewer pipe would also be relocated. High voltage power lines that run parallel to the Raley Boulevard roadway crossing would be relocated to enable earthwork to be completed. A 48-inch storm sewer that terminates into MCDC on the east side of Raley Boulevard would be temporarily relocated during construction and replaced in its current alignment after construction of the culvert and levee extension. Other utilities and encroachments would be protected in place.



**Magpie Creek Project Footprint**

Canal Widening	Culvert
Canal and Slope Modification	Construction Access
Levee Extension	Staging

Updated 12/7/2023



**US Army Corps of Engineers**  
Sacramento District

Figure 3.5.1-2. Magpie Creek Project Footprint

Equipment used for earth moving to construct the MCP would include various haul trucks, excavators, bulldozers, cranes, and front loaders. Haul trucks would include semi-truck pulling bottom dump trailers and end dump trucks. Most hauling would likely be performed by the end dump trucks as they have a tighter turn radius and access to portions of the work area is limited. Excavators would be used for loading material removed from the canal as part of the realignment and slope flattening efforts. Excavators may be supplemented by a crane during the vegetation removal process to lift woody vegetation more efficiently from the MCDC. Bulldozers and front loaders would be used to rough in the material placement and refine canal slopes to the final grade and elevation specified in the design. Water pumps would be used to dewater excavated areas and to pump water around a section of the canal while it is being realigned. Generators of various sizes would be used to power equipment away from public utilities. Water trucks and street sweepers would be used to provide fugitive dust control to help adhere to the Storm Water Pollution Prevention Plan (SWPPP). Flatbed trucks may be used to bring preformed structures for the culverts and bike bridge components. The size of the truck used for hauling material may vary depending on access constraints, where work is being performed within the project site, and the weight of the material being hauled.

Cofferdams and bypass pumping would be used to maintain dry work areas around construction areas. Work for the slope-widening portion of the project would begin with the construction of one or both maintenance roads so that they could be used in the construction of the slope widening. The canal realignment would start construction before the existing MCDC is backfilled. The levee between Raley Boulevard and Vinci Avenue would then be raised and widened to meet the new design geometry. The new levee extension east of Raley Boulevard may be constructed concurrently with the main levee or later, depending on the constraints for the concrete culvert structure installation and the closure of Raley Boulevard. The work to be performed from Vinci Avenue to Dry Creek Road could be done concurrently with upstream work if water can be pumped past the project work areas to avoid equipment working in the water. The culvert and improvements at the Sacramento Northern Bike Trail crossing could be constructed concurrently with the other proposed improvements.

The MCP would be constructed using imported materials, most notably crushed stone to be used for maintenance roads, borrow material to build the levee extension and realign the current levee, if the existing excavated materials cannot be used, and the project would remove existing material that must be removed from the site. All borrow material would be supplied by the contractor and be sourced from local areas (approximately 50 miles). Construction materials, including import and export volumes, are shown in Table 3.5.1-1, Table 3.5.1-2, and Table 3.5.1-3. Crushed stone would be used to create the two new maintenance roads from Vinci Avenue to Dry Creek Road, the levee extension, and to rebuild the original levee crown. Material would be excavated to widen the canal between Raley Boulevard and Vinci Avenue, flatten slopes from Vinci Avenue to Dry Creek Road, and install the culverts at the Sacramento Northern Bike Trail. Soil material would be imported to build embankments, and concrete would be used to construct the Raley Boulevard crossing and the box culverts used at the bike bridge (culverts would be precast).

Excavated soil would be hauled off-site to either an existing stockpile location or to a landfill within 50 miles of the project site. While not currently expected to occur, if needed, a stockpile would be located on a portion of the project site that is disturbed or was previously cleared

and/or used for stockpiling. All stockpile locations would be selected to avoid sensitive resources on or adjacent to the site(s).

**Table 3.5.1-1. Magpie Creek Project - Quantity Computation Summary**

Computation Item	Quantity
Project Length	8,696 FT
Existing Enlargement Length	2,145 FT
Embankment Area (total)	4 AC
Total In-Place Embankment	18,280 CY

Notes: Feet (FT), Acres (AC), Cubic Yards (CY)

**Table 3.5.1-2. Magpie Creek Project – Quantity Summary**

Quantities are summarized below. Detailed computations are located on subsequent pages.

Description	Quantity	Notes
<b>Mobilization and Demobilization</b>		
Mobilization	1 EA	
Demobilization	1 EA	
<b>Clearing and Grubbing</b>		
Levee Embankment, Field/Existing Slope	2 AC	Calculated from LiDAR data. Created a shape to exclude the wooded area shape from the field/existing slope boundary.
Channel, Existing	3 AC	Calculated from LiDAR data. Created a shape to exclude the wooded area shape from the field/existing slope boundary.
	<b>806 CY</b>	<b>Total</b>
<b>Demolition</b>		
Pavement at Raley Crossing	800 FT	
Existing Bridge at Raley Crossing	1 EA	
<b>Embankment</b>		
Levee Embankment, Fully Compacted	7655 CY	
Ramp Embankment, Fully Compacted (Raley Crossing)	1,185 CY	
	<b>8840 CY</b>	<b>Total</b>
<b>Excavation</b>		
Channel Widening, Raley to Vinci	17,158 CY	
Slope Flattening, Vinci to Dry Creek	36,005CY	
Triple 5x5 Box Culvert at Bike Trail	5,350 CY	
	<b>58,513 CY</b>	<b>Total</b>
<b>Crushed Stone Surfacing</b>		
Existing (to be removed and stockpiled)	459 TN	Assumes 10' wide by 5" thick for 2,100 feet of existing levee
Levee Crown	1,103 TN	12' x 7" x 3000' of levee crown
Access Road, Vinci to Dry Creek, Left Bank	1,029 TN	12' x 7" x 2800' of access road
Access Road, Vinci to Dry Creek, Right Bank	1,029 TN	12' x 7" x 2800' of access road
	<b>3,620 TN</b>	<b>Total</b>

Description	Quantity	Notes
<b>Turf Establishment and Maintenance</b>		
Levee and Channel Footprint (Raley to Vinci)	4.0 AC	
Channel Widening footprint (Vinci to Dry Creek)	10 AC	
	<b>14 AC</b>	<b>Total</b>
<b>Environmental Protection</b>		
Silt Fence	7,392 LF	2 * project length
Hydroseeding	8.5 AC	Project length x 100' wide r
Construction Entrance/Exit	4 EA	
<b>Triple 7x10 Box Culvert, Raley Crossing</b>		
Earthwork – Cut (Raley Crossing Canal)	5800 CY	
Earthwork – Fill (Raley Crossing Canal)	13600 CY	
Box Culvert (Triple Cell 70' X 10')	1 JOB	
Aggregate Base Class 2(Under Roadway))	867 TON	
Granular Bedding Material (Raley Crossing)	125 TN	
Riprap, RSP Class III (Raley Crossing Canal)	6450 TON	
Riprap, RSP Class IX (Raley Crossing Canal)	8550 TON	
Hot Mix Asphalt Surface Course (Raley Crossing Canal)	252 TON	
Hot Mix Asphalt Binder Course (Raley Crossing Canal)	252 TON	
Crushed Stone Base Course (Class II) (Under Riprap)	90 TON	
Guardrail (Raley Crossing Canal)	200 LF	
Precast Culvert	120 EA	4ft sections, 10 sections per box, 3 boxes
Concrete	292 CY	
Steel Reinforcement	57829 lbs.	1.5% volume of concrete
<b>Triple 5x5 Box Culvert, Bike Path</b>		
Earthwork – Cut (Bypass Canal)	2500 CY	
Earthwork – Fill (Bypass Canal)	830 CY	
Box Culvert (Triple Cell 5' X 5')	1 JOB	
Granular Bedding Material (Bypass Canal)	40 TON	
Riprap, RSP Class III (Bypass Canal)	7500 TON	
Hot Mix Asphalt Surface Course (Bypass Canal)	252 TON	
Hot Mix Asphalt Binder Course (Bypass Canal)	253 TON	
Crushed Stone Base Course (Class II) (Bypass Canal)	160 TON	
Guardrail (Bypass Canal)	100 LF	

Notes: Each (EA), Acres (AC), Cubic Yards (CY), Feet (FT), Linear Feet (LF), pounds (lbs.)

**Table 3.5.1-3. Magpie Creek - Quantity Summary Breakdown**

Material	# Truck Loads	# Trucks	# Trips/Day Truck	#Days	Truck Capacity
Clearing and Grubbing	41	18	3	0.76	Super Dump 20cy, ISX Diesel 485hp
Embankment (Fill)	884	20	6	7.37	Tandem 10cy, ISX Diesel 365hp
Excavation - Channel Widening, Raley to Vinci	1716	20	9	9.53	Tandem 10cy, ISX Diesel 365hp
Excavation - Slope Flattening, Vinci to Dry Creek	1800	40	9	5.00	Tandem 10cy, ISX Diesel 365hp
Excavation - Triple 5x5 Box Culvert at Bike Trail	268	5	10	5.36	Super Dump 20cy, ISX Diesel 485hp
Crushed Stone Surfacing	121	5	10	2.42	Super Dump 20cy, ISX Diesel 485hp
Earthwork - Cut (Raley Crossing)	290	5	10	5.80	Super Dump 20cy, ISX Diesel 485hp
Earthwork - Fill (Raley Crossing)	680	10	15	4.53	Super Dump 20cy, ISX Diesel 485hp
Granular Bedding Material (Raley Crossing)	9	2	5	0.90	Super Dump 20cy, ISX Diesel 485hp
Class II Base Course A-g. - Roadway	58	3	10	1.93	Super Dump 20cy, ISX Diesel 485hp
Riprap, RSP Class III (Raley Crossing)	430	10	11	3.91	Super Dump 20cy, ISX Diesel 485hp
Riprap, RSP Class IX (Raley Crossing)	570	10	14	4.07	Super Dump 20cy, ISX Diesel 485hp
Hot Mix Asphalt Surface Course (Raley Crossing)	50	5	5	2.00	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt Binder Course (Raley Crossing)	50	5	5	2.00	Tandem 10cy, ISX Diesel 365hp
Crushed Stone Base Course (Class II) (Under Riprap)	3	1	3	1	Super Dump 20cy, ISX Diesel 485hp
Precast Culvert	30	3	10	1	Tractor Trailer (flatbed) Diesel 430hp
Cast In Place Concrete	37	5	5	1.48	Concrete Mixing Truck 8cy, Diesel 400 hp
Steel Reinforcement	1	1	1	1	Tractor Trailer (flatbed) Diesel 430hp
Earthwork - Cut (Bypass Channel)	125	5	8	3.13	Super Dump 20cy, ISX Diesel 485hp
Earthwork - Fill (Bypass Channel)	42	4	5	2.10	Super Dump 20cy, ISX Diesel 485hp
Granular Bedding Material (Bypass Channel)	2	1	2	1.00	Super Dump 20cy, ISX Diesel 485hp
Riprap, RSP Class III (Bypass Channel)	250	10	8	3.13	Super Dump 20cy, ISX Diesel 485hp

Material	# Truck Loads	# Trucks	# Trips/Day Truck	#Days	Truck Capacity
Hot Mix Asphalt Surface Course (Bypass Channel)	2	2	2	0.50	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt Binder Course (Bypass Channel)	2	2	2	0.50	Tandem 10cy, ISX Diesel 365hp
Crushed Stone Base Course (Class II) (Bypass Channel)	6	2	6	0.50	Super Dump 20cy, ISX Diesel 485hp

Source: USACE 2023

### Schedule

The MCP components would be constructed over a single construction season. Raley Boulevard would be closed for approximately 3 months to allow construction of the transportation crossing, most likely during the summer months. Construction, including closure of Raley Boulevard, would occur in 2027.

Construction hours would conform with the exempt hours for construction under the city of Sacramento and county of Sacramento noise ordinances and would be Monday through Saturday from 7:00 a.m. to 6:00 p.m. and Sundays from 9:00 a.m. to 6:00 p.m. within the city limits, and Monday through Friday from 6:00 a.m. to 8:00 p.m. and Saturday from 7:00 a.m. to 8:00 p.m. in the unincorporated areas of the county. It needs to be also noted that this project may incorporate night work as well to complete certain features that are away from residences to reduce impacts to the community.

#### 3.5.1.2 Haul Routes, Road Closures, and Staging Areas

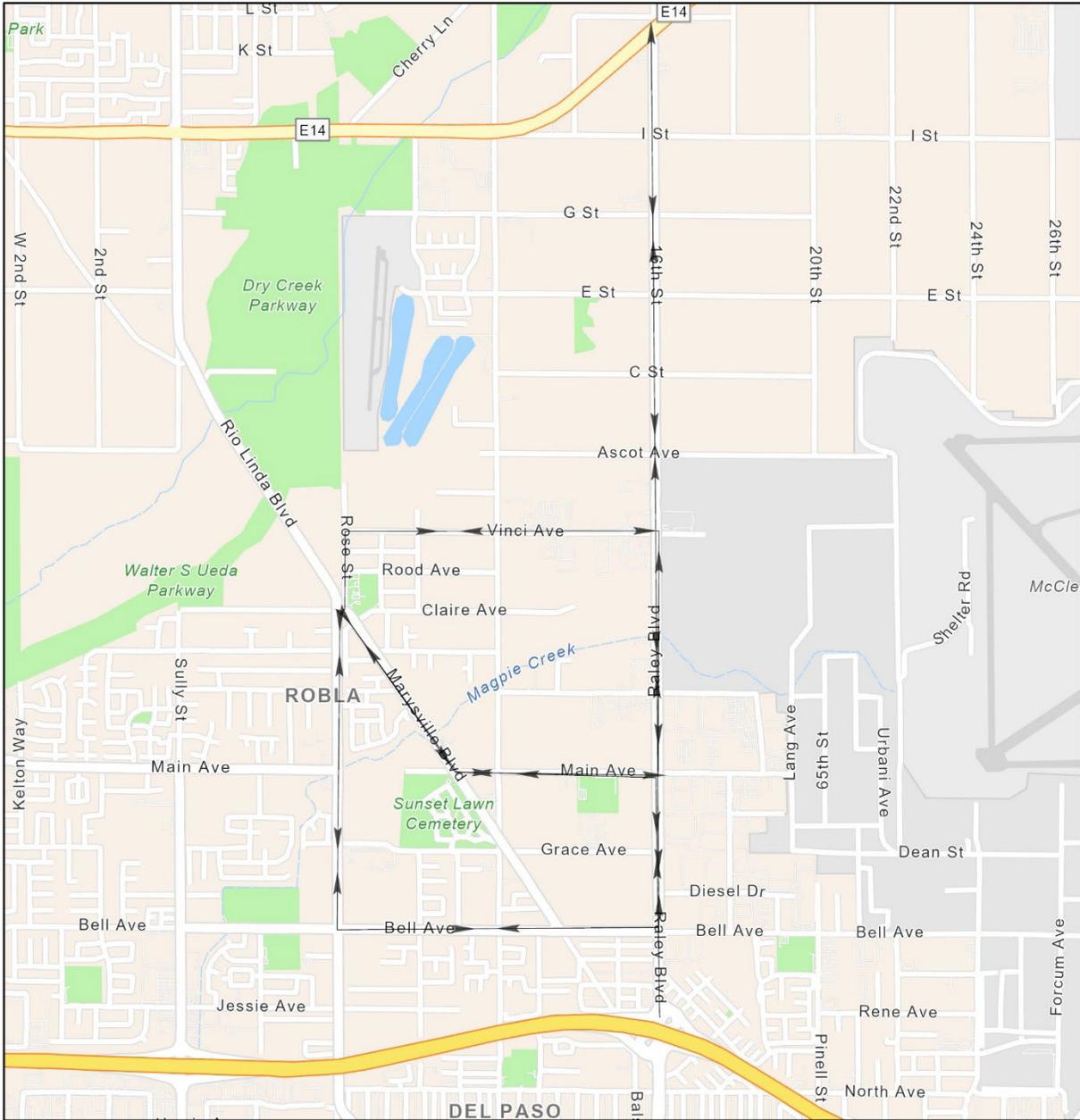
Materials would be hauled to the project site from Elkhorn Boulevard or from Interstate-80 to Raley Boulevard (Figure 3.5.1-3). From Raley Boulevard, the haul route would differ depending on which portion of the project site is being accessed. From Raley Boulevard, the access routes would be Vinci Avenue, Main Avenue, and Bell Avenue. From Bell Avenue, Rio Linda Boulevard would be used to move material north and south and this connects Rose Street to Vinci Avenue. From Main Avenue, Marysville Boulevard would be used to move material north and south, this connects Rose Street to Vinci Avenue. Truck sizes and the type of trucks available to the project may vary as they could be end-dump trucks or bottom dump trucks.

The expected traffic detour that would be used during the Raley Boulevard closure would be (traveling north to South) Raley Boulevard to Vinci Avenue, then left onto Dry Creek Road, and then turning left on to Santa Ana Road to bring traffic back to Raley Boulevard. The reverse would be used to go from South to North (Figure 3.5.1-4). There are two staging areas proposed. An additional site may be required for overflow storage of materials and equipment (Figure 3.5.1-2). All sites are near the MCDC and relatively flat which would have the needed space completely flattened to allow for office trailers, storage units, and other needed structures to be placed on site. Their access to roads will need to be upgraded to comply with the SWPPP. If temporary access to the public utilities is not possible, then generators would need to be used to supply power for the sites. The larger site is approximately 2 acres and has roughly 1.5 acres of upland area on the western side of the parcel that is usable for a staging area without impacting wetlands that are less than 50 feet away from the upland area. The western upland location has

access from Rio Linda Boulevard where equipment can move along the road and levee top maintenance road. The smaller site is approximately 1.25 acres of upland area and has access from Raley Boulevard and would allow for easier access to the construction area of the training levee. Staging areas would include temporary office structures, storage units, generators, and portable restroom facilities (Figure 3.5.1-2). Workers would access the site by regional and local roadways.

### **3.5.1.3 Operations and Maintenance**

Once construction of MCP is complete, USACE will transfer the site for long-term management and maintenance to the NFS (SAFCA, DWR and CVFPB). The NFS would be responsible for the implementation of an updated O&M manual for the MCP Site. If land used by the MCP was not purchased for the project and is not already owned by the NFS, all land will be returned to previous conditions and returned to the owners of the property. The NFS would be responsible for the long-term O&M execution necessary to maintain the levee, channel features, and functions to support the expected design conditions to enable MCDC to have the necessary flow of water downstream to meet the designed reduction in flood risks. Establishment of woody vegetation would be prohibited under the updated O&M manual for the site. The new maintenance roads, which are being constructed as a part of the MCP, would be used to access the entirety of the MCP levee system for O&M activities and flood fighting purposes. The maintenance roads are not intended for public access and could be gated. Annual, or more frequently if needed, maintenance would be performed that could include, but is not limited to, erosion control, vegetation removal, and mowing the levee slopes. Any ramp or maintenance road would be maintained as vegetation free. These new maintenance roads and ramps would not be used to introduce activities to the area other than the new O&M regime.



**Magpie Creek Project Haul Routes**

← Haul Route



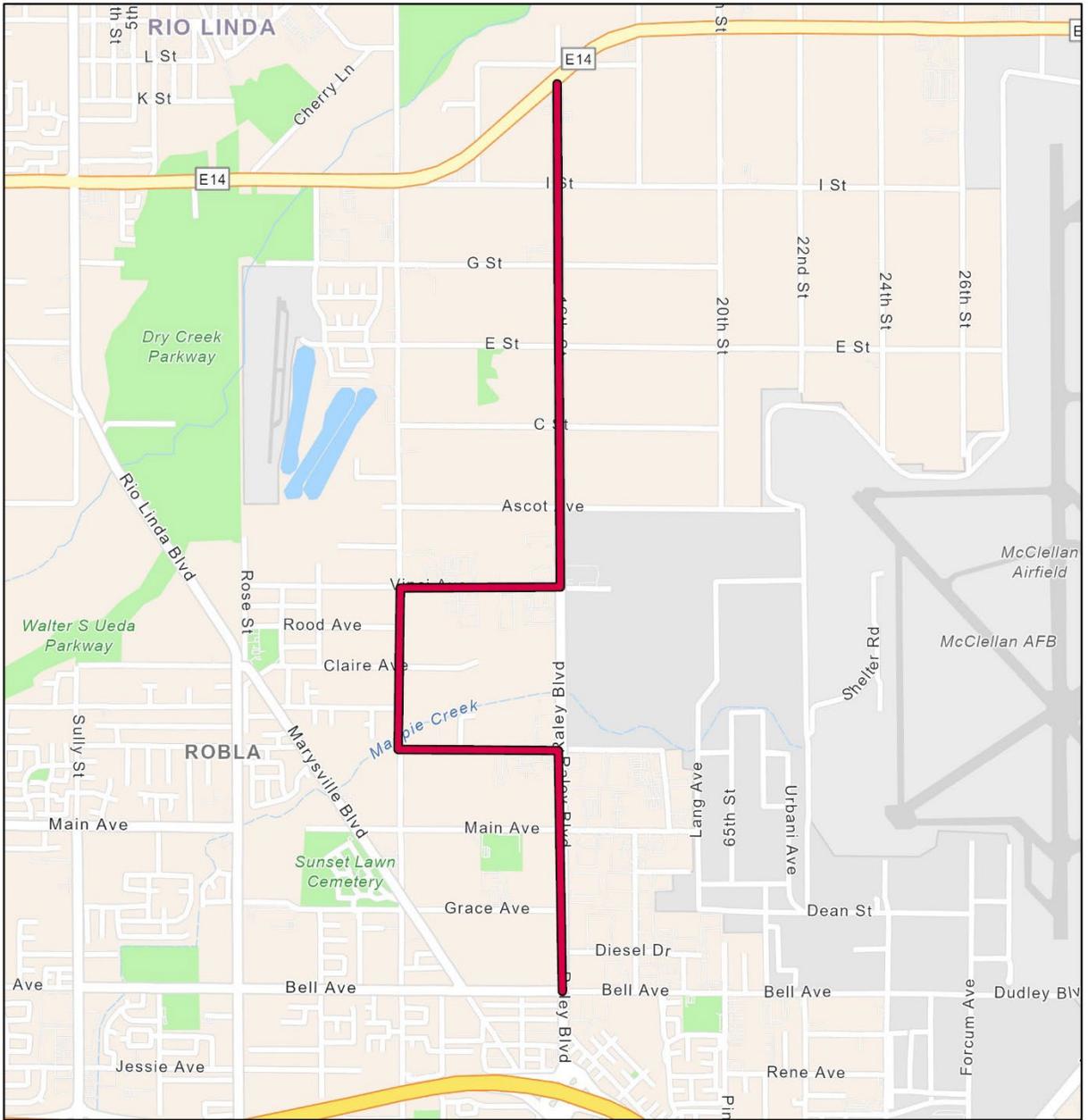
**US Army Corps of Engineers**  
Sacramento District

0 0.3 0.6 Miles



Updated 7/11/2023

**Figure 3.5.1-3. Proposed Haul Routes at MCP**



**Magpie Creek Project Traffic Detour for use During Raley Boulevard Closure**

 Traffic Detour


  
**US Army Corps of Engineers**®
   
 Sacramento District

0      0.3      0.6 Miles
   


Updated 7/11/2023
   


**Figure 3.5.1-4. Proposed Raley Boulevard Detour at MCP**

### 3.5.1.4 Proposed Action and Design Refinements for the Magpie Creek Project

For CEQA purposes, this SEIS/SEIR contains effects analyses for the entirety of the project that would be constructed, including both modifications and design refinements and portions of the project that were evaluated in the 2016 ARCF GRR FEIS/EIR. Because the Proposed Action includes some activities that are already part of the authorized project (the No Action Alternative), NEPA also requires a comparison of the effects of the design refinements (portions of the Proposed Action not previously authorized) to the No Action Alternative. Table 3.5.1-4 identifies which components of the Proposed Action for the MCP are already authorized by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements which must be compared to the No Action Alternative for NEPA purposes.

**Table 3.5.1-4. No Action Alternative and Design Refinement Comparison for Magpie Creek Project Improvements**

Project Component	NEPA Status
Culvert Installation at Bike Path Bridge	No Action (USACE 2016 p. 43)
Channel Vegetation Clearing and Slope Modification from Vinci Avenue to Dry Creek Road. This would increase downstream flow of water in the MCDC.	Design Refinements, this portion of the design was originally just a maintenance road in the NO Action plan
Channel Realignment. The new alignment is the result of the levee modification and the concrete culvert traffic crossing feature,	Design Refinements. The canal will be wider than the No Action plan
Levee Raise, the new levee raise is being designed to be widened on the water side and to a height that meets with newer features.	Design Refinements, while similar in size the new alignment and height of the levee differs from the No Action plan.
Raley Boulevard Crossing Structure, this concrete culvert was not a part of the No Action and is needed to connect the original levee with the new levee.	Design Refinements, this feature did not exist in the No Action plan.
New Levee, this feature is along left bank of the left bank of the MCDC.	Design Refinements, while there was new levee construction in the No Action plan this is a completely new alignment than the No Action plan.

Source: USACE 2022a, adapted by GEI

## 3.5.2 American River Erosion Contracts 3B North, 3B South and 4B

### 3.5.2.1 Features of the Proposed Action and Construction Details

The footprint of American River Erosion Contract 3B North is on the right (north) bank of the Lower American River between Howe Avenue and Harrington Way. The footprint of American River Erosion Contract 3B South is on the left (south) bank of the Lower American River between Watt Avenue and the Mayhew Drain.

The erosion protection features at American River Erosion Contract 3B include four different types of features: bank protection, launchable trench, launchable toe, and tie backs. Bank protection consists of revetment being placed on the surface. Launchable trench is buried revetment that launches. Launchable toe is stack revetment that launches. Tie backs are made up

of revetment that stop erosion from spreading further. These methods are discussed in more detail in section 3.5.2.1.1 and illustrated in Figures 3.5.2-15 through 3.5.2-20.

American River Erosion Contract 3B North (Sites 3-1 and 4-2) would include constructing approximately 1.8 miles of launchable rock toe, launchable trench, and bank protection. American River Erosion Contract 3B South (Site 4-1) would include constructing approximately 1.5 miles of launchable rock toe launchable trench, bank protection, and tie backs. The project details and footprints for Sites 3-1, 4-2, and 4-1 are shown in Figure 3.5.2-3 through Figure 3.5.2-9. Haul routes would follow the routes in Figure 3.5.2-14. Staging areas would be at those areas shown in Figure 3.5.2-3, Figure 3.5.2-5, Figure 3.5.2-7, and Figure 3.5.2-9.

American River Erosion Contract 4B includes flood reduction improvements to prevent erosion or scour and protect large trees which would remain on the bench (Figures 3.5.2-12 and 3.5.2-13) after Contract 3B North and South have been constructed. These improvements are considered at the program level and are expected to include velocity work (which includes fluvial erosion protection activities) and tree scour work (which includes activities preventing scour around trees) in the floodplain bench at two locations:

- approximately 0.2 mile on the right bank near RM 8.6, and
- approximately 0.4 mile on the left bank near RM 9.8.

In general, velocity and tree work, shown in Figure 3.5.2-12 and Figure 3.5.2-13, could include a combination of placing revetment on the levee, placing rocks smaller than revetment gradations around tree trunks, or removing trees.

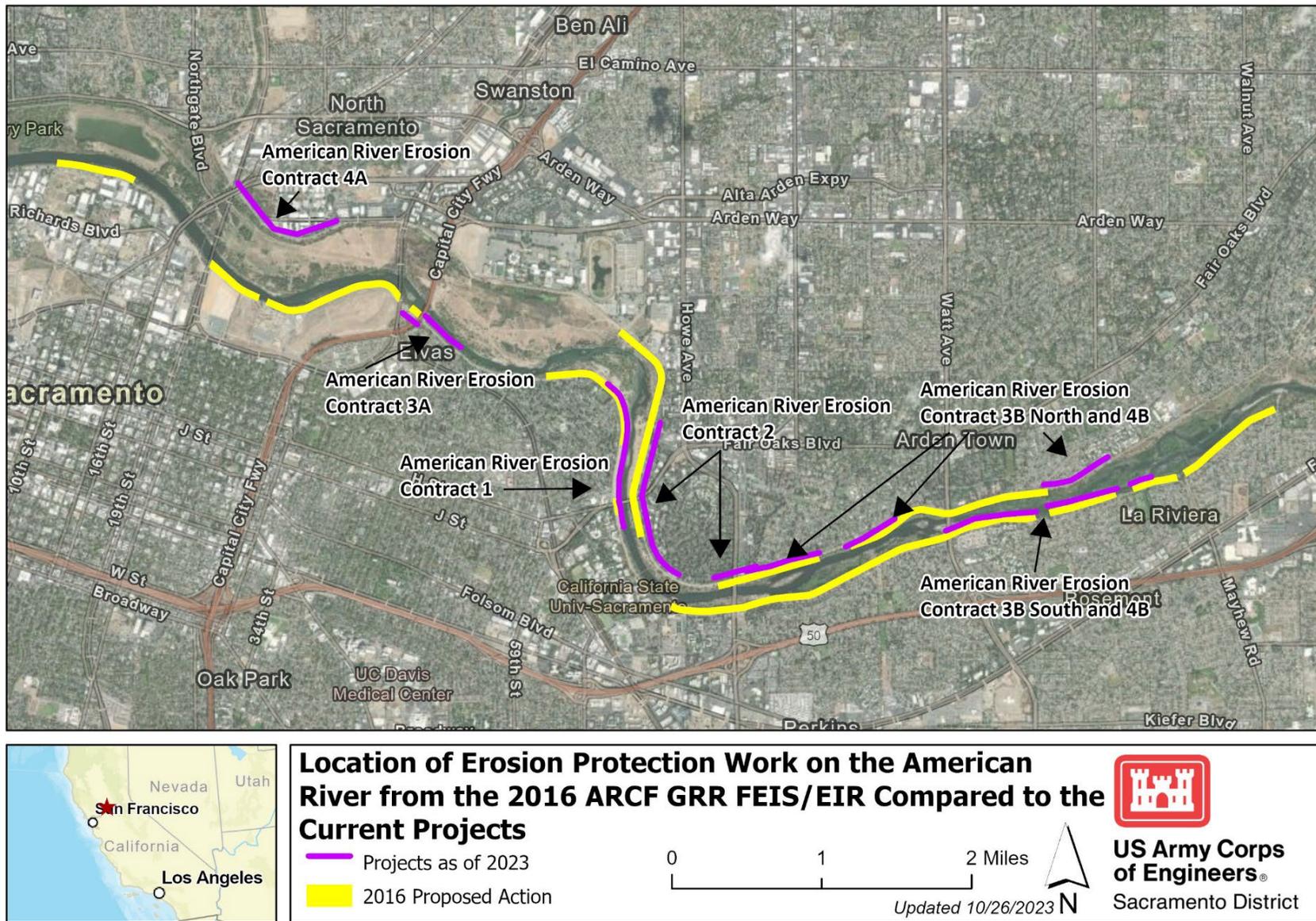
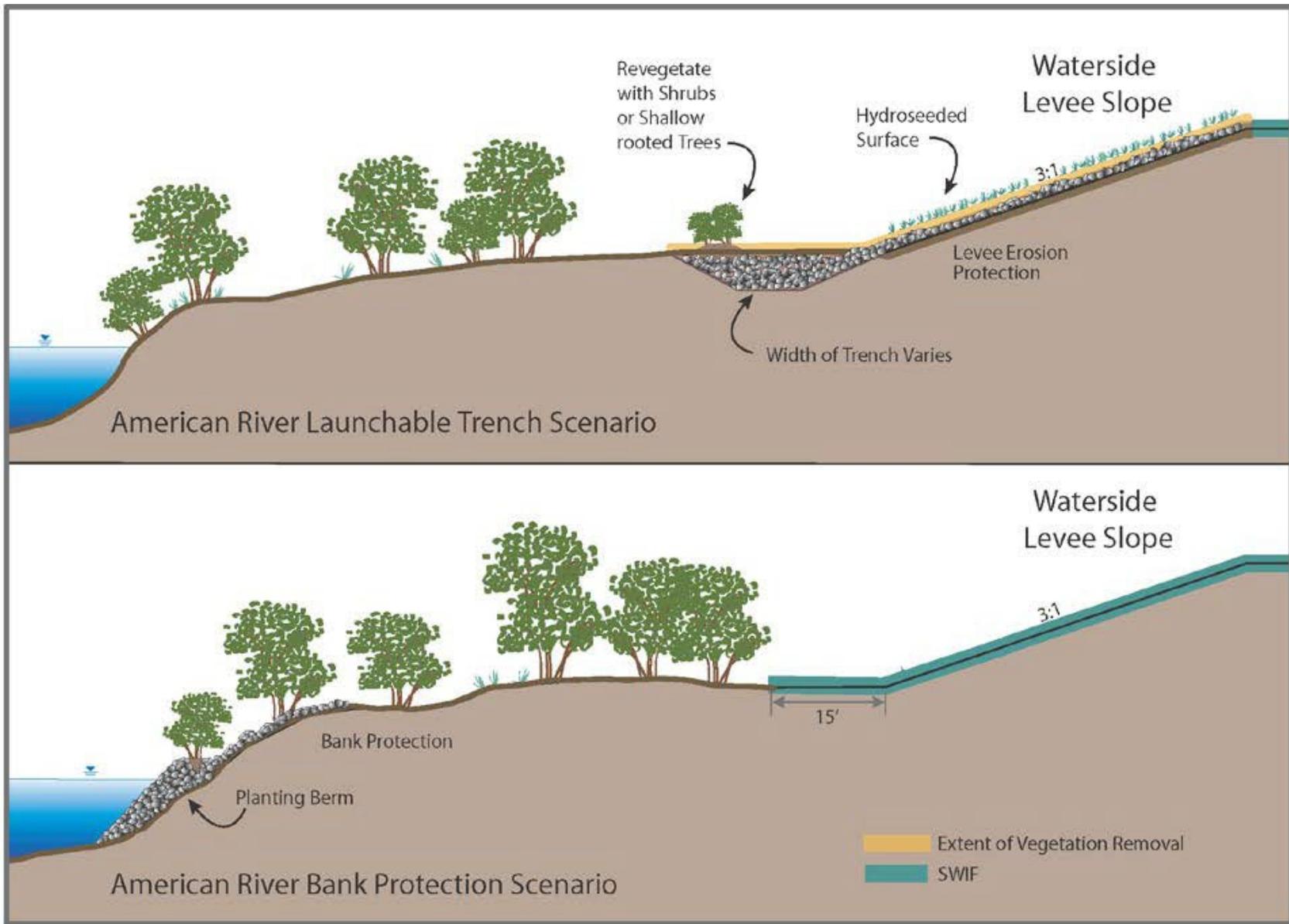


Figure 3.5.2-1. Previously Analyzed and Currently Proposed American River Erosion Protection Sites



**Figure 3.5.2-2. Launchable Trench and Bank Protection Designs**

### 3.5.2.1.1 Erosion Protection Features

#### American River Erosion Protection Terminology

Table 3.5.2-1 outlines and defines the erosion protection terms for erosion protection activities on the American River.

**Table 3.5.2-1. American River Contract Erosion Protection Features**

Name	Definition	Description of Erosion Protection Feature Types seen
Bank Protection Scenario	Revetment placed on riverbank or levee embankment/slope. (Figure 3.5.2-2, bottom illustration).	Soil-filled revetment: Includes soil between revetment and above to establish vegetation on the surface. Soil-filled levee embankment: soil filled revetment placed on the levee embankment. Soil filled riverbank revetment: placed on or near the riverbank. Bank protection without soil fill is typically seen in areas where construction of soil filled revetment would not be feasible.
Launchable Trench Scenario	Revetment buried underground that launches to provide flood protection during flood condition where erosion occurs. (Figure 3.5.2-2, top illustration)	Buried, near the levee embankment toe. Buried, on the river overbank typically above the typical wetted channel.
Launchable (Rock) Toe	Revetment placed at the waterward face of the planting or along riverbank to address vertical scour concerns and associated stability of the riverbank during flood conditions. The feature is also used to target desired elevation for vegetation establishment of the planting bench (Figures 3.5.2-15 and 3.5.2-16)	Launchable toe with planting bench- Placed at the waterward face of a planting bench. Launchable toe- Placed along the riverbank near the riverbank toe. When at riverbank toe, can be included with or without a planting bench.
Tiebacks	Revetment placed perpendicular to the river that impedes erosion from progressing. (Figures 3.5.2-17 through 3.5.2-20)	Tie-back features are typically incorporated element with erosion features listed above as necessary to meet flood risk measures. Buried Rock Tieback- Placed on its own and installed under the ground. Planting Bench Rock Tie Backs- Placed within planting benches and spaced intermittently.



**American River Erosion Contract 3B North and South Project Site**

**Project Impact**

 Erosion Protection	 Construction Access
 Ramp/Other Access Feature	 Staging

Updated 1/13/2025

0 0.25 0.5 Miles

 N

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Figure 3.5.2-3. American River Erosion Contract 3B Project Footprint



**American River Erosion Contract 3B North Site 3-1 Erosion Protection Method**

Levee Bank Protection	Limits of Possible Additional Ramp	OHWM
Riverbank Bank Protection	O&M Ramp	RM
Stormwater Outfall Bank Protection	Boundary	RM tenths
Temporary Ramp	Planting Bench with Launchable Toe/Stability Toe	

Updated 4/9/2024

0 500 1,000 Feet

**US Army Corps of Engineers**  
Sacramento District

Figure 3.5.2-4. American River Erosion Contract 3B North Site 3-1 Details

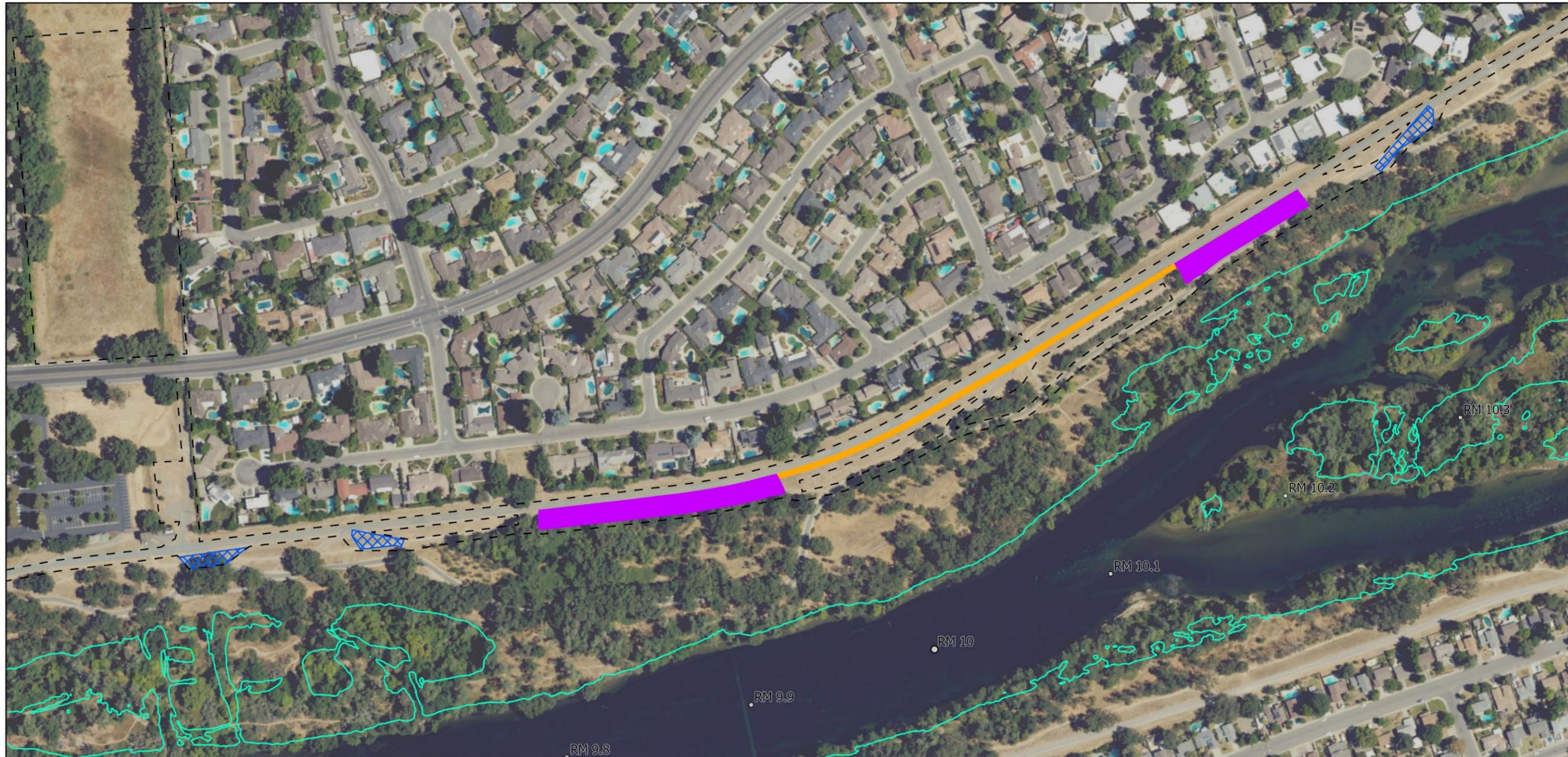


**American River Erosion Contract 3B North Site 3-1 Project Footprint**

Erosion Protection	Staging
Construction Access	OHWM
Ramps	RM tenths
	Outfall

Updated 4/9/2024

Figure 3.5.2-5. American River Erosion Contract 3B North Site 3-1 Footprint



**American River Erosion Contract 3B North Site 4-2 Erosion Protection Method**

Levee Bank Protection	OHWM
Launchable Trench and Levee Bank Protection	RM
Temporary Ramp/Access Feature	RM tenths
Boundary	

Updated 4/9/2024

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Figure 3.5.2-6. American River Erosion Contract 3B North Site 4-2 Details

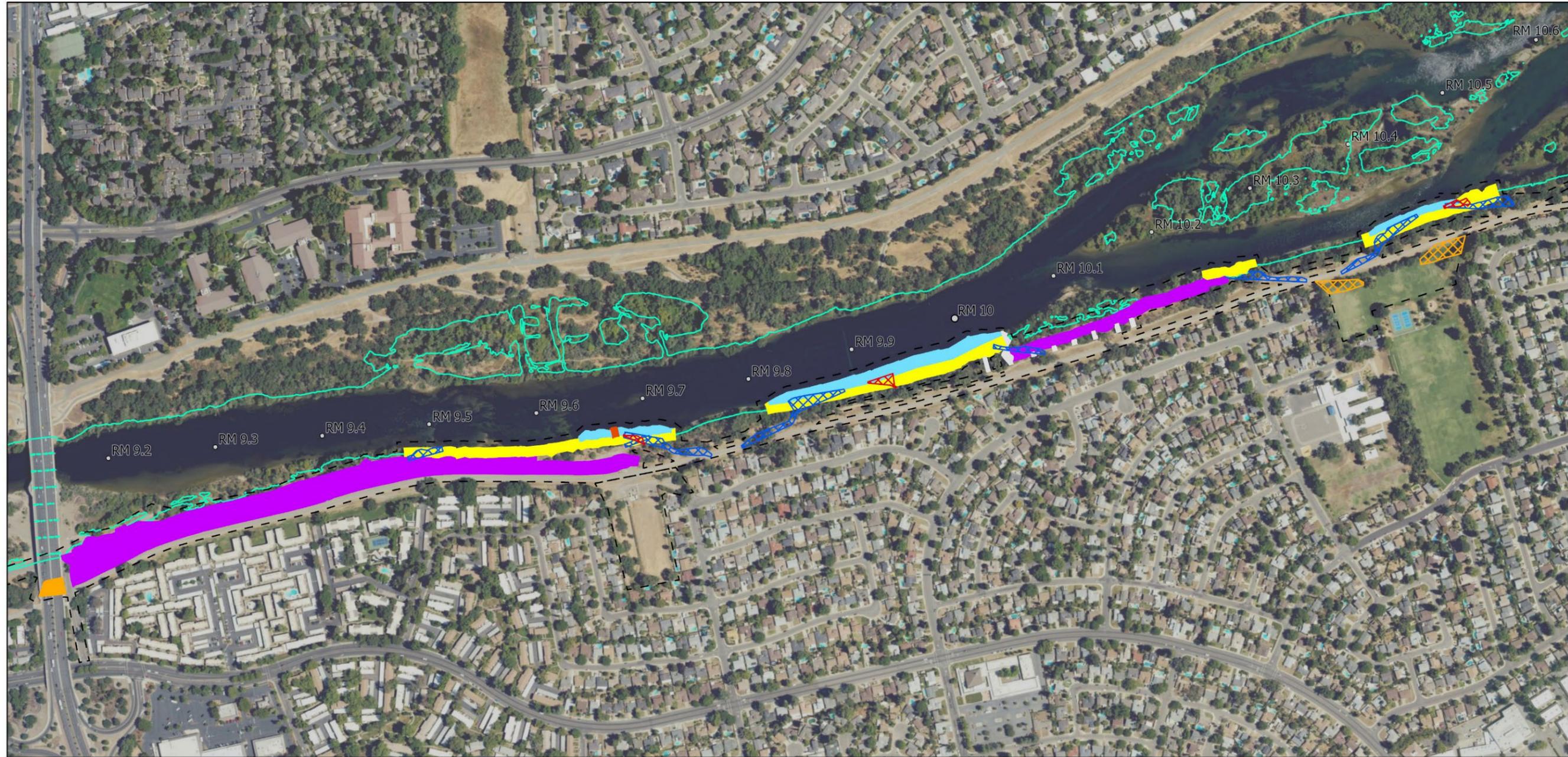


**American River Erosion Contract 3B North Site 4-2 Project Footprint**

Erosion Protection	OHWM
Construction Access	RM tenths
Ramps/Access Feature	Outfall
Staging	

Updated 1/13/2025

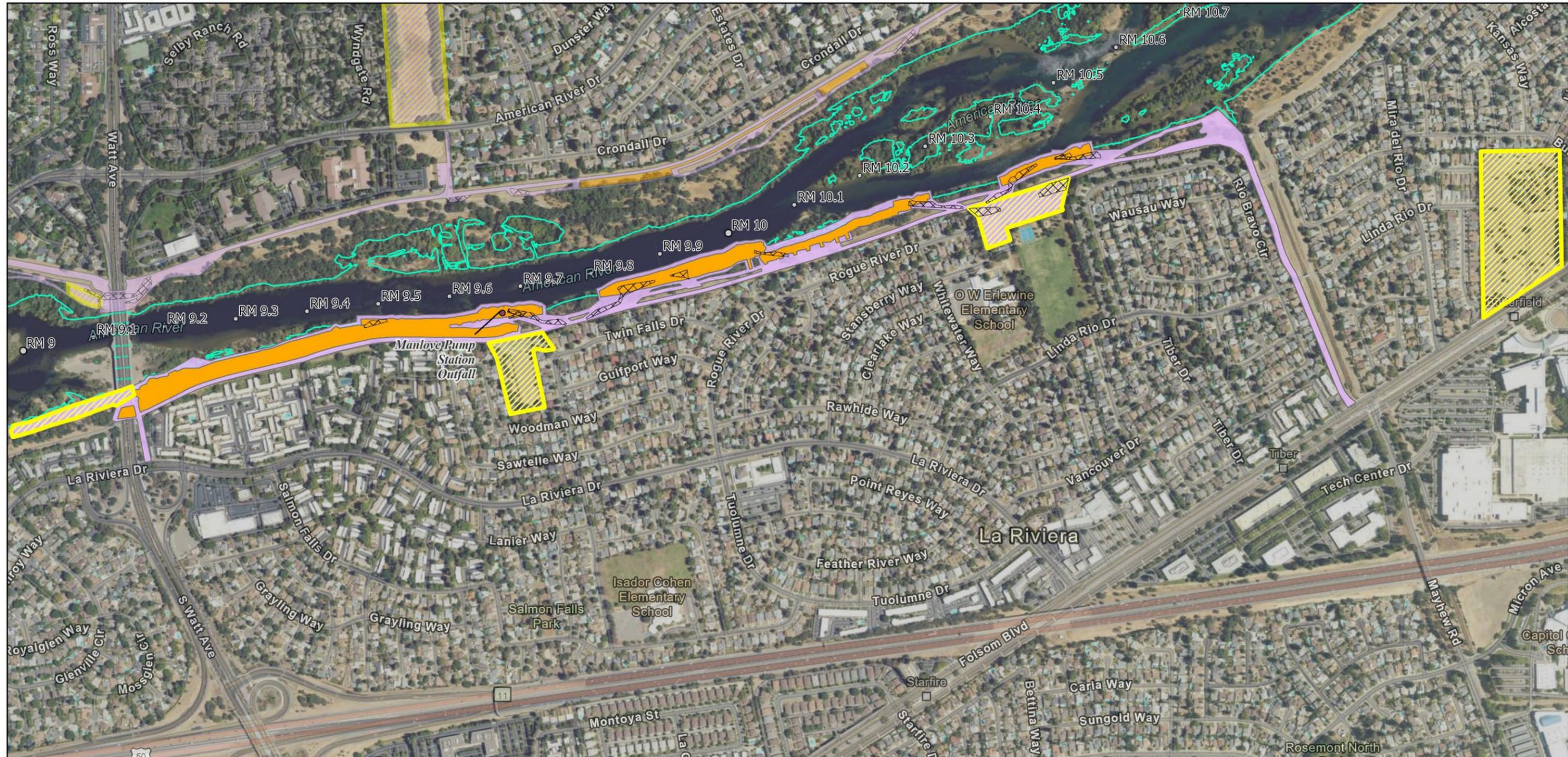
Figure 3.5.2-7. American River Erosion Contract 3B North Site 4-2 Footprint



**American River Erosion Contract 3B South Site 4-1 Erosion Protection Method**

■ Tie Backs	■ Stormwater Outfall Bank Protection	□ OHWM	Updated 1/13/2025
■ Launchable Trench and Levee Bank Protection	■ Temporary Ramp	○ RM	 <b>US Army Corps of Engineers</b> Sacramento District
■ Planting Bench with Launchable Toe/Stability Toe	■ O&M Ramp	○ RM tenths	
■ Levee Bank Protection	□ Boundary	0 500 1,000 Feet	
■ Riverbank Bank Protection	■ Limits of Possible Additional Ramp		

Figure 3.5.2-8. American River Erosion Contract 3B South Site 4-1 Details



**American River Erosion Contract 3B South Site 4-1 Project Footprint**

Project Impact	OHWM
Erosion Protection	RM tenths
Construction Access	Outfall
Ramps	
Staging	

Updated 1/13/2025

0 0.15 0.3 Miles

N

Figure 3.5.2-9. American River Erosion Contract 3B South Site 4-1 Footprint



**Location of Trees to be Removed for the Lower American River Contract 3B Project Component- Downstream**

Data represents locations of trunks of trees to be removed. Tree trunk location points have been buffered to reflect the size of the trunk diameter at 4.5 above the ground. Larger areas reflect larger trunk sizes not canopy.

*Please note: Tree data shown on this map illustrate trees over 6 inches in diameter at 4.5 feet above the ground from a survey conducted in 2021. It is possible that a small number of trees shown in yellow as protected (<5 percent) might nevertheless require removal due to potential changes in condition since 2021 to preserve safe conditions at the project site during construction. Preliminary 100% designs were used to estimate tree removal needs.*

- **Trees Surveyed Outside Project Area- Not Impacted**
- **Trees Protected**
- **Trees Removed**

Updated 10/21/2024



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**Figure 3.5.2-10. Tree Removal Areas from American River Erosion Contract 3B North and South Downstream Area**



**Location of Trees to be Removed for the Lower American River Contract 3B Project Component- Upstream**

Data represents locations of trunks of trees to be removed. Tree trunk location points have been buffered to reflect the size of the trunk diameter at 4.5 above the ground. Larger areas reflect larger trunk sizes not canopy.

*Please note: Tree data shown on this map illustrate trees over 6 inches in diameter at 4.5 feet above the ground from a survey conducted in 2021. It is possible that a small number of trees shown in yellow as protected (<5 percent) might nevertheless require removal due to potential changes in condition since 2021 to preserve safe conditions at the project site during construction. Preliminary 100% designs were used to estimate tree removal needs.*

- **Trees Surveyed Outside Project Area- Not Impacted**
- **Trees Protected**
- **Trees Removed**

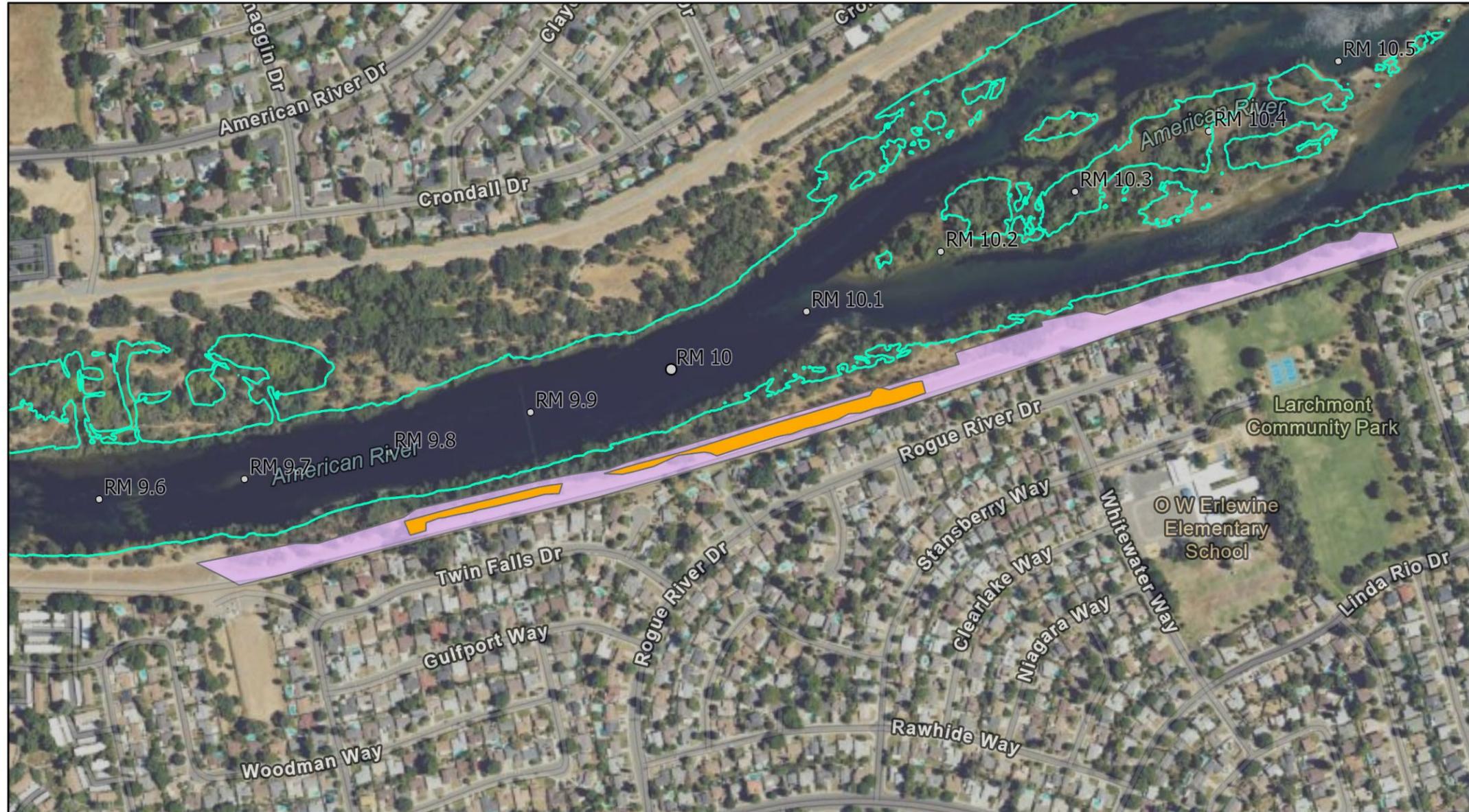
Updated 10/21/2024 0      500      1,000 Feet



**Figure 3.5.2-11. Tree Removal Areas from American River Erosion Contract 3B North and South Upstream Area**



Figure 3.5.2-12. American River Erosion Contract 4B Northern Footprint



**American River Erosion Contract 4B Project Footprint**

**Project Impact**

- Construction Buffer
- Construction Access
- OHWM
- ★ 4B Locations
- RM

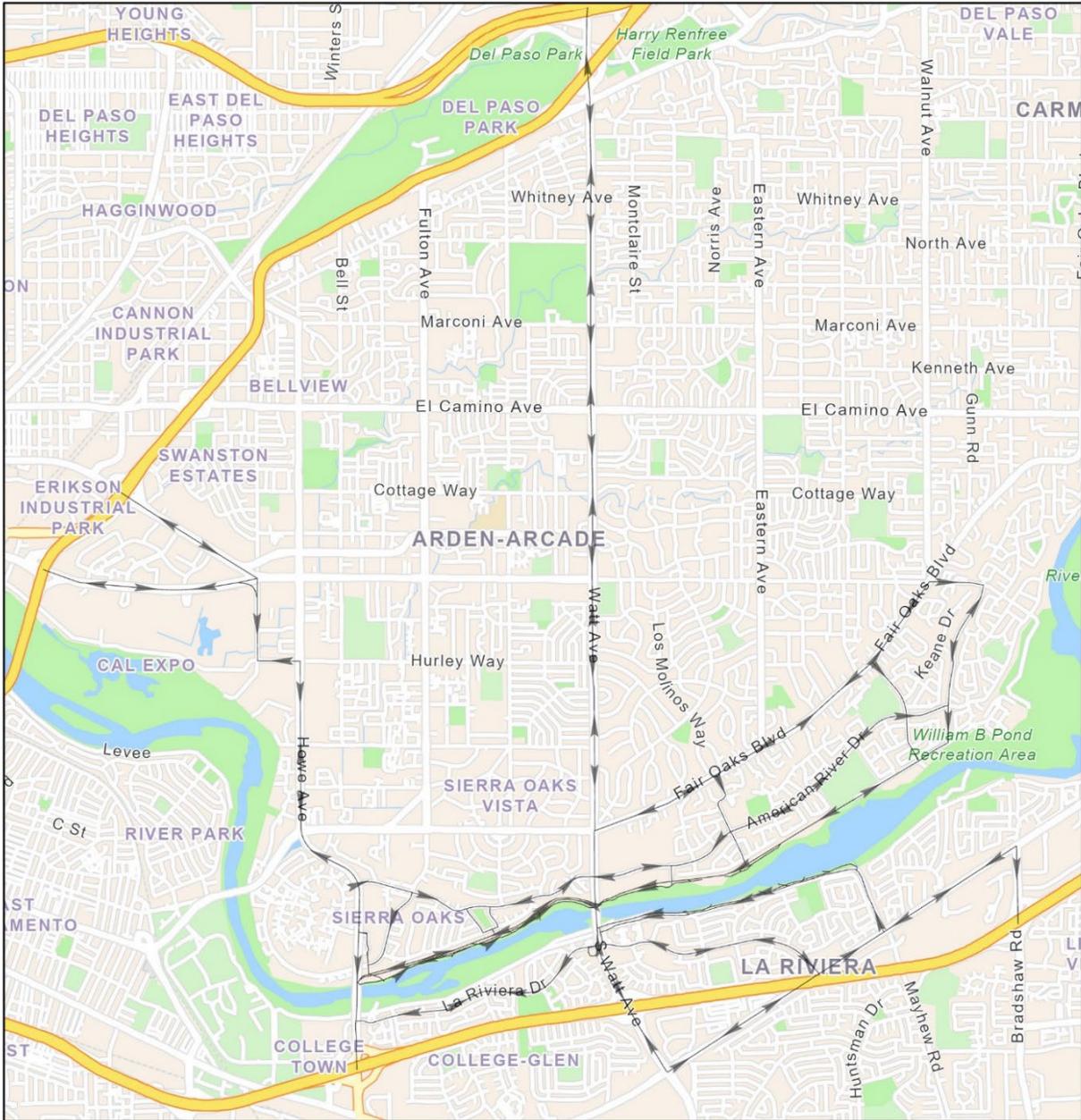
Updated 12/31/2024

0    300    600 Feet

N

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Figure 3.5.2-13. American River Erosion Contract 4B Southern Footprint



**American River Erosion Contract 3B North and South Haul Routes**

 Haul Route  
 Location


  
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Updated 3/22/2024
 

**Figure 3.5.2-14. American River Erosion Contract 3B Haul Routes**

## *American River Erosion Contract 3B North*

### Site 3-1

Site 3-1 flood risk reduction work would be conducted on the right bank of the American River between RM 7.7 to RM 8.8 (Figure 3.5.2-15). The erosion protection method proposed at Site 3-1 is a combination of bank protection (both on the levee and riverbank) and launchable rock toe protection with planting bench (Figure 3.5.2-16). Bank protection at Site 3-1 would consist of a layer of soil-filled revetment. At most locations, the soil-filled revetment would also be covered with six- 12- inches of topsoil to encourage establishment of vegetation. At Site 3-1, bank protection would be located both on the levee slope in some areas within the project site and just upslope of the launchable toe and planting bench (Figure 3.5.2-15). Some excavation may be required for the bank protection and launchable rock toe with planting bench to get to design grade.

The proposed layout of launchable rock toe at Site 3-1 generally includes a stone pile within the river that would support a planting bench between the stone pile and the existing bank (Figure 3.5.2-15). The launchable rock would be covered with a layer of choke stone fill (smaller rock that would fill in the gaps between the larger pieces of revetment) to both minimize potential for predatory fish to hide in rock voids, and to reduce the artificial appearance of the launchable rock. The launchable rock toe is designed to “launch” into areas where erosion of the channel bottom occurs and progresses during a flood event below the toe of the rock, covering the eroded surface of the new channel bottom and inhibiting further progression of the eroded slope. Once fully launched, a layer of riprap (with a thickness designed to match the thickness of the non-launchable rock of the area) would extend from the channel toe to the maximum depth of scour predicted in the river channel.

Planting benches will be filled with soil and topped with soil filled burlap sandbags and coir fabric. Planting bench tiebacks would be placed periodically throughout the planting benches to limit the extent of erosion and subsequent damage to a planting bench during a flood event. Along the lower bench, instream woody material (IWM) structures consisting of whole trees with intact root wads would be installed to increase the roughness of the bench and to provide fine-textured woody material along the river margin for juvenile salmonid rearing habitat.

The proposed design of the erosion protection features at Site 3-1, specifically the planting benches and soil-filled revetment, would allow for the site to be revegetated and used for onsite mitigation for riparian habitat and salmonid habitat. Onsite mitigation has been designed in accordance with the USFWS and NMFSBO. Elderberry shrubs would be transplanted to an offsite mitigation site in compliance with the USFWS BO (2022-0003130-R004, dated March 21, 2025). Transplanted elderberries are likely to be moved to the Rossmoor West mitigation site discussed in the American River Erosion Contract 2 Supplemental EIS/EIR (USACE, 2021). There would be no woody vegetation or trees planted in the vegetation free zone (VFZ), which, on the water side of the levee, extends approximately 15 feet from the levee toe at site 3-1. The VFZ would be reseeded with native grasses and forbs.

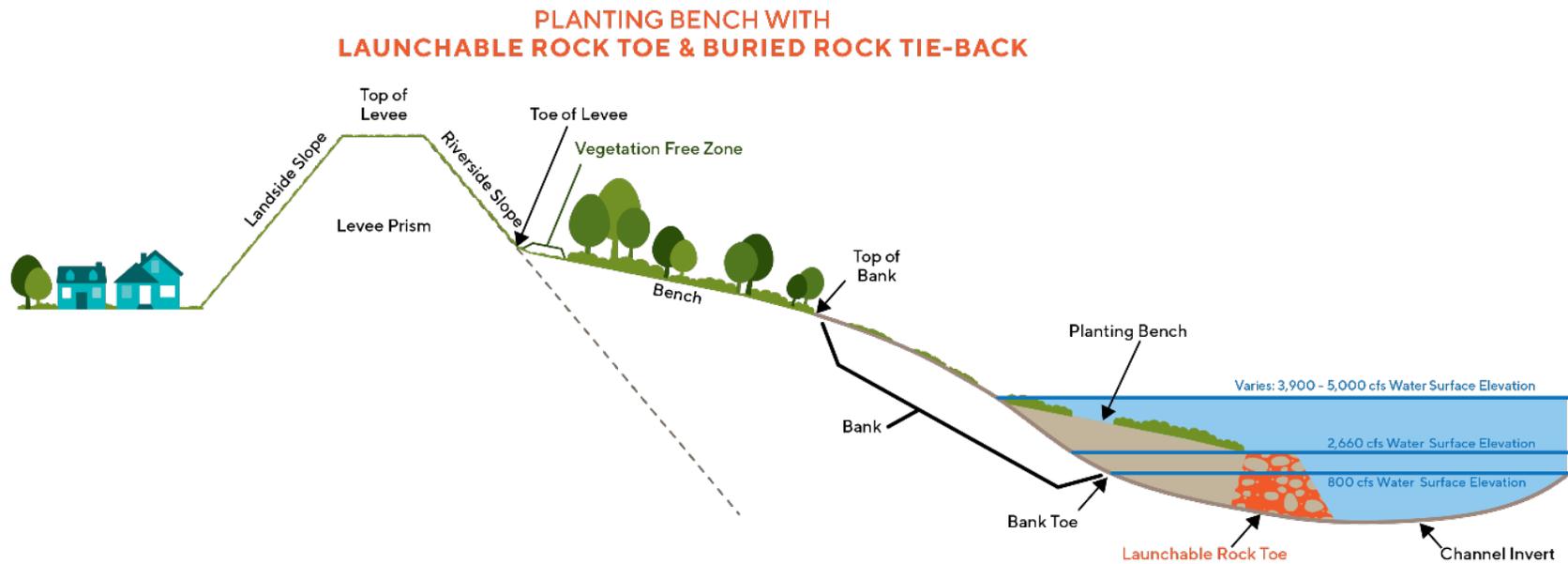
Onsite planting plans have been specifically designed by Landscape Architects with consideration to the likelihood of survival based on the soil available once erosion protection features are installed, slopes, elevations, water availability, where plant species are typically

along the American River at other locations, and success at previous erosion protection sites along the American River. With exception to the vegetation free zone (which would be reseeded with native grasses and forbs) and the launchable toe (which would not be replanted but would be covered with choke stone), Site 3-1 would be replanted with woody vegetation. Willow (*Salix gooddingii*, *Salix laevigata*, *Salix lasiandra* and *Salix lasiolepis*) containers, other native trees (*Acer negundo*, *Alnus rhombifolia*, *Fraxinus latifolia*, *Plantanus racemosa*, *populus fremontii*, and *Quercus lobata* are anticipated to be planted), shrubs (*Artemesia douglassiana*, *Baccharis pilularis*, *Baccharis salicifolia*, *Cephalanthus occidentalis*, *Cercis occidentalis*, *Frangula californica*, *Mara macrocarpa*, *Rosa californica*, *Rubus ursinus*, *Sambucus mexicana*, and *Symphoricarpus albus* var. *Laevigatus*), vines (*Aristolochia californica*, *Clematis lingustifolia*, and *Vitis californica*) and herbaceous plants (*Carex barbarae*, *Euthamia occidentalis*, *Juncus balticus*, *Juncus effusus*, *Leymus triticoides*, *Equisetum hyemale* ssp. *Affine*, *Oenothera hookerii*, *Schoinoplectus californicus*, and *Schoenoplectus acutus* var. *occidentalis*) are anticipated to be planted in mixtures along different zones of the project for highest likelihood of survival of plant species. The vegetation free zone will be reseeded with native grasses and forbs.

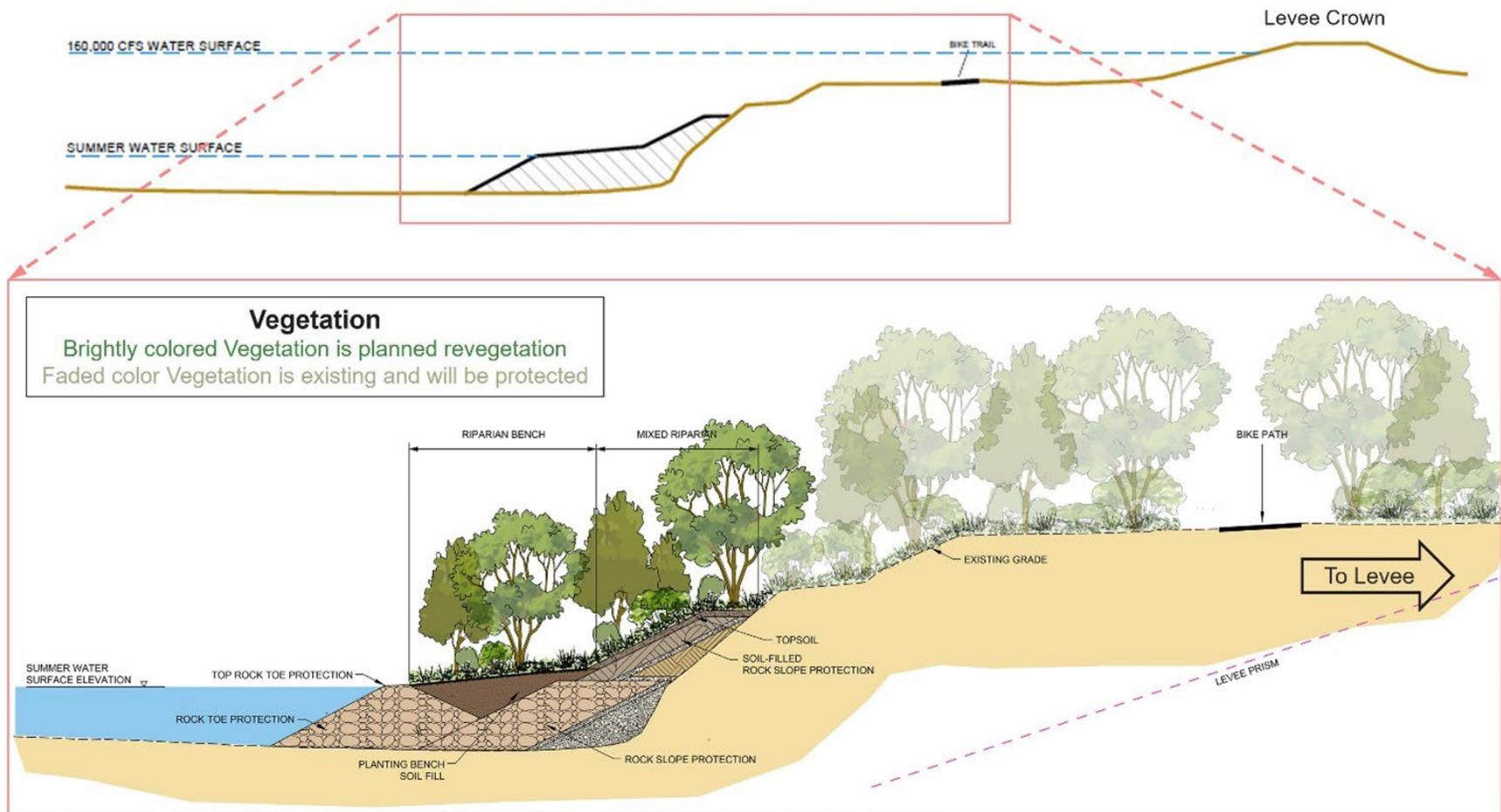
Trees would need to be removed to build the erosion protection features and facilitate levee improvements. Figure 3.5.2-10 illustrates the proposed footprint of tree removal at Site 3-1. Minimizing the area of wooded vegetation and number of trees that would be impacted was a primary consideration throughout the design process that led to the proposed design. A team of Civil Engineering, Landscape Architects and Environmental staff worked together to determine what trees needed to be removed. The erosion protection features, and access ramps were designed to minimize impacts to trees as much as possible while still meeting flood risk objectives and ensuring safety to those constructing the improvements and recreating at the site once work is complete. Temporary access ramps and permanent O&M ramps were placed in locations to minimize the number of trees needing to be removed and when tree removal was needed to prioritize removing the non-native black locust trees (*Robinia pseudoacacia*) over native trees. At Site 3-1, a strip of trees will remain between the Jedediah Smith Memorial Recreational Trail and the erosion protection features. Approximately 145-155 trees are proposed for removal to enable construction at Site 3-1, with approximately 745-785 trees identified to be protected during construction and retained. Because of changes in the field since the tree surveys were conducted, differences in collection of tree data for the design tree data, and the need for on-site evaluation of construction feasibility, the Proposed Action assumes that small changes (up to 5% total trees more or less outside the tree removal footprints provided in Figures 3.5.2-10 and 3.5.2-11 for Sites 3-1, 4-2, and 4-1 in aggregate) in the number of trees removed may occur prior to construction.

Trees are proposed for removal prior to migratory bird nesting season (generally February 15 to August 31, depending on the species and environmental conditions for any given year) to avoid impacts under the Migratory Bird Treaty Act; however, trees may need to be removed during nesting season if there is a large snowpack season with high water surface elevations through spring and early summer that make the trees inaccessible through June.

Temporary ramps would be built to access some of the site to construct the erosion protection. A riprap apron and outfall ditch have been designed around the Sump 109 outfall and Kadema Pump Station outfall (Figure 3.5.2-5).

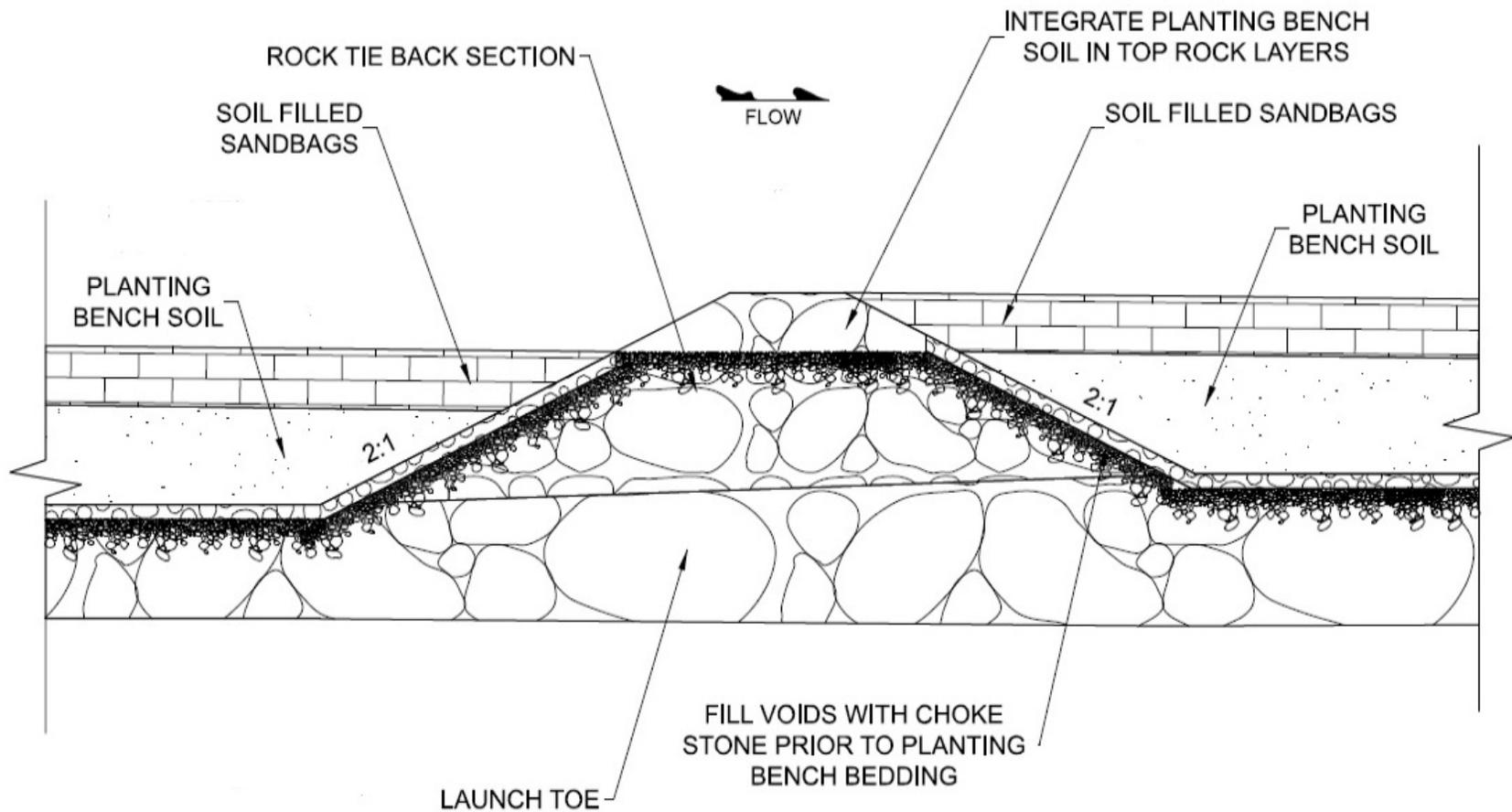


**Figure 3.5.2-15. Planting Bench with Launchable Rock Toe and Buried Rock Tie-Back**

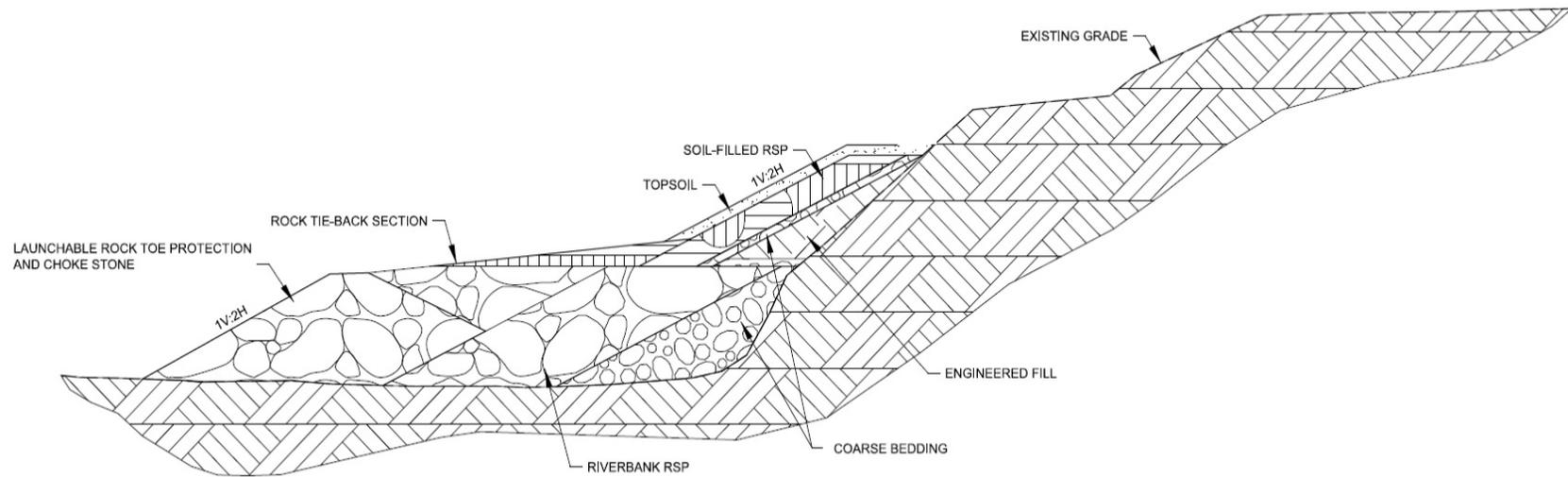


Graphical representation - Subject to Change. Revegetated condition reflective of mature state

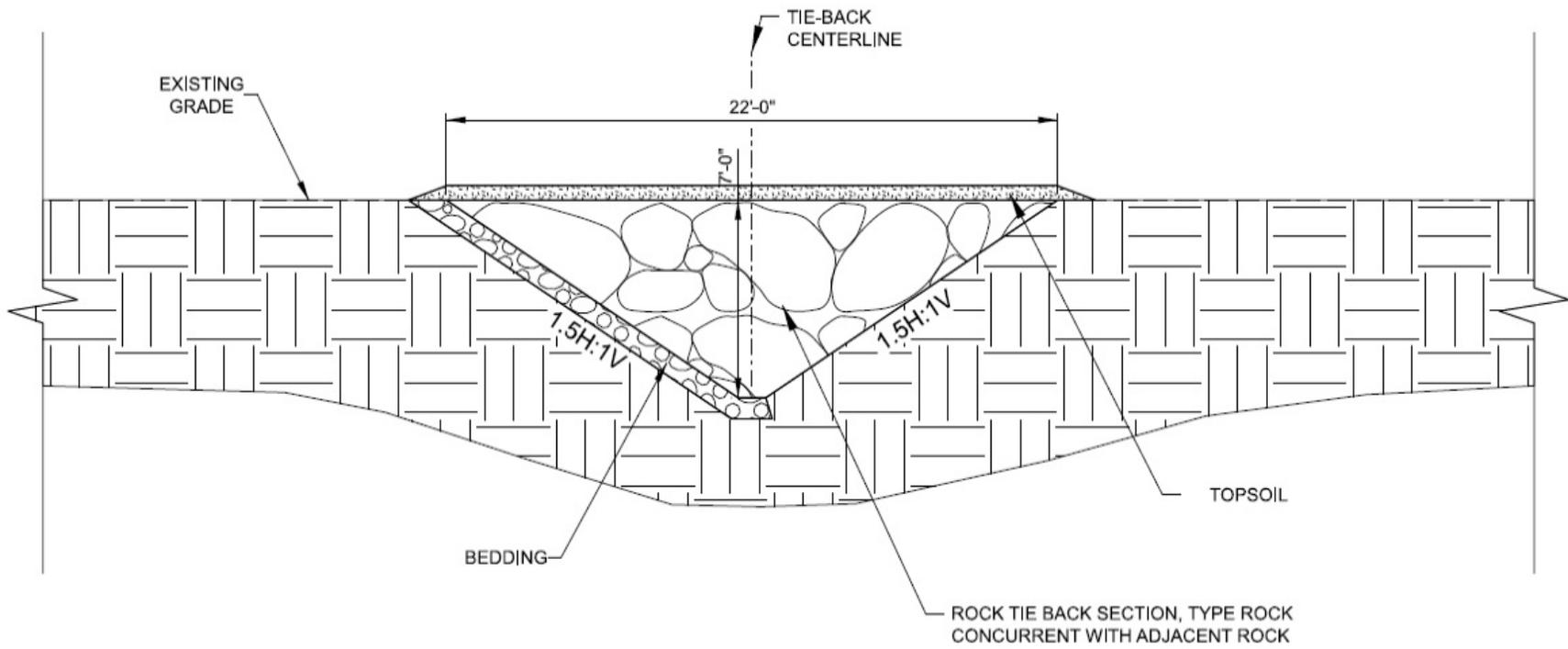
**Figure 3.5.2-16. Example cross section of launchable toe and bank protection found at American River Erosion Contract 3B North Site 3-1. Only areas where trees are fully colored will have tree removal. When color is dulled on trees, those trees will not be removed**



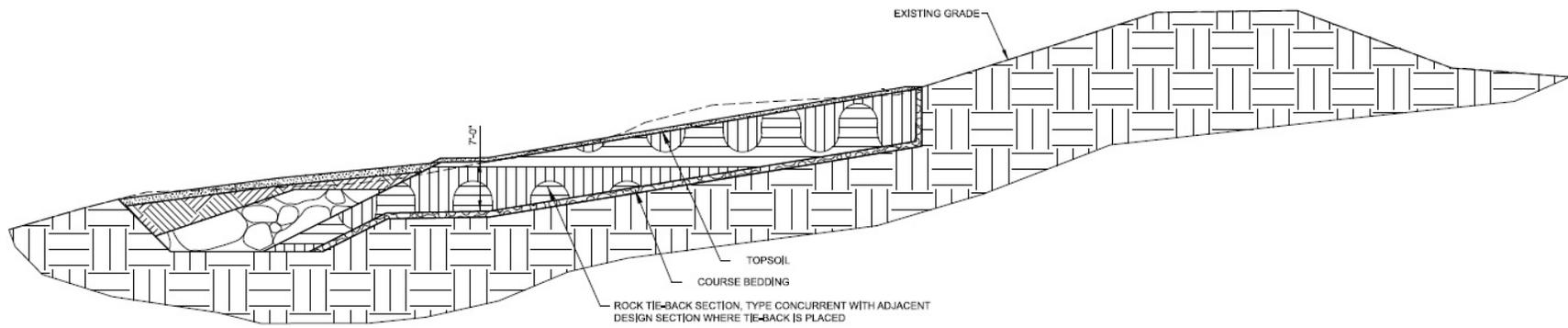
**Figure 3.5.2-17. Example cross section (cut parallel to river) of planting bench tie backs found at American River Erosion Contract 3B North and South**



**Figure 3.5.2-18. Example cross section (cut perpendicular to river) of planting bench tie backs found at American River Erosion Contract 3B North and South**



**Figure 3.5.2-19. Example cross section (cut parallel to river) of tie backs found at American River Erosion Contract 3B South**



**Figure 3.5.2-20. Example cross section (cut perpendicular to river) of tie backs found at American River Erosion Contract 3B South**



**American River Erosion Contract 3B North Site 3-1 Area to be Replanted**

 Areas to be Replanted

Updated 12/31/2024



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**Figure 3.5.2-21. Anticipated Onsite Woody Vegetation Replanting for American River Erosion Contract 3B North Site 3-1**

## Site 4-2

Site 4-2 improvements would be constructed on the right bank of the American River between RM 9.7 and RM 10.3 (Figure 3.5.2-7). Similar to the erosion protection methods analyzed in the 2016 ARCF 2016 GRR FEIS/FEIR, 2,350 linear feet of bank protection (soil-filled revetment) and launchable trench (Figure 3.5.2-3, Figure 3.5.2-6) are the proposed erosion protection methods at Site 4-2 (Figure 3.5.2-22). Bank protection would be located on the levee slope. The launchable trench would be buried to provide soil above the revetment and allow native grasses and forbs to reestablish.

The Site 4-2 work location is under existing infrastructure (a dirt maintenance levee toe road and the Jedediah Smith Memorial Recreational Trail) and areas within the vegetation-free zone with only grassy vegetation. As shown on Figure 3.5.2-11, approximately 15-20 trees are proposed for removal to enable construction at Site 4-2, and the proposed design (buried launchable trench and soil-filled revetment) would allow for the site to be revegetated with native grasses and forbs (such as *Bromus carinatus*, *Elumus glaucus*, *Hordeum brachyantherum*, *Koeleria macrantha*, and *Stipa Pulchra*). The dirt road and recreational trail will be replaced to existing conditions (or with slight modifications that are preapproved by County Parks) once work is completed. All ramps constructed for Site 4-2 will be temporary and excavation needed for erosion protection will be limited to the levee bank protection. Otherwise, the description of excavation, ramps, and tree removal presented above under Site 3-1 would apply to Site 4-2 as well. Materials excavated from other ARCF 2016 Project components may be used if the materials meet engineering criteria.

## ***American River Erosion Contract 3B South***

### Site 4-1

Site 4-1 levee work would be conducted on the left bank of the Lower American River between RM 9.1 and RM 10.5 (Figure 3.5.2-9). As with Sites 3-1 and 4-2, bank protection would be constructed on the levee and riverbank and consist of soil-filled revetment. Launchable trenches would be buried to allow site revegetation. (Figures 3.5.2-23 through 3.5.2-27).

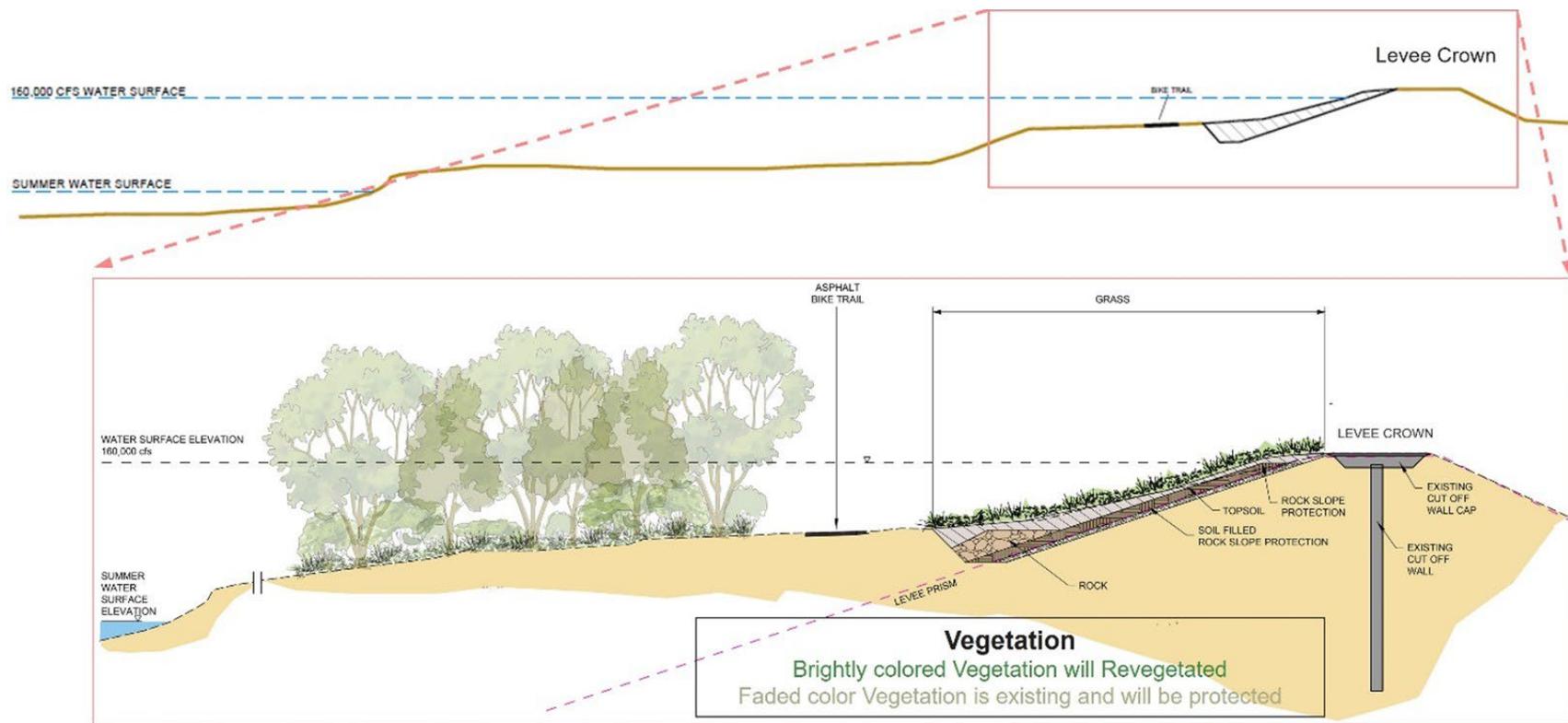
The downstream section of the site includes a buried launchable trench below the existing parking lot and road at the Watt Avenue river access to avoid most impacts to existing vegetation. Further upstream where the overbank narrows and high-quality riparian habitat exists, the design shifts to focus erosion protection features to be placed along the riverbank to avoid impacts to the overbank and to enable preservation of heritage oaks. The design of Site 4-1 was developed to preserve high quality riparian habitat to the extent possible, with improvement footprints both minimized and placed to preserve older and larger, and native, trees.

Approximately 515-540 trees are proposed for removal to enable construction at Site 4-1, with 630-665 trees designated for avoidance and preservation.

At site 4-1, there will be some rock toes that are not launchable, otherwise the description of launchable rock toe under Site 3-1 applies to Site 4-1 as well. There would be tie backs higher up on the bench outside the launchable trench as a form of erosion protection (Figure 3.5.2-19 and 3.5.2-20). These tie backs are built up of revetment placed in a triangular shape. The top of the tiebacks are approximately 22 feet across, and the tip of the triangular shape is 7 feet below existing grade of the levee overbank. The tie backs are built so that during high flows, erosion

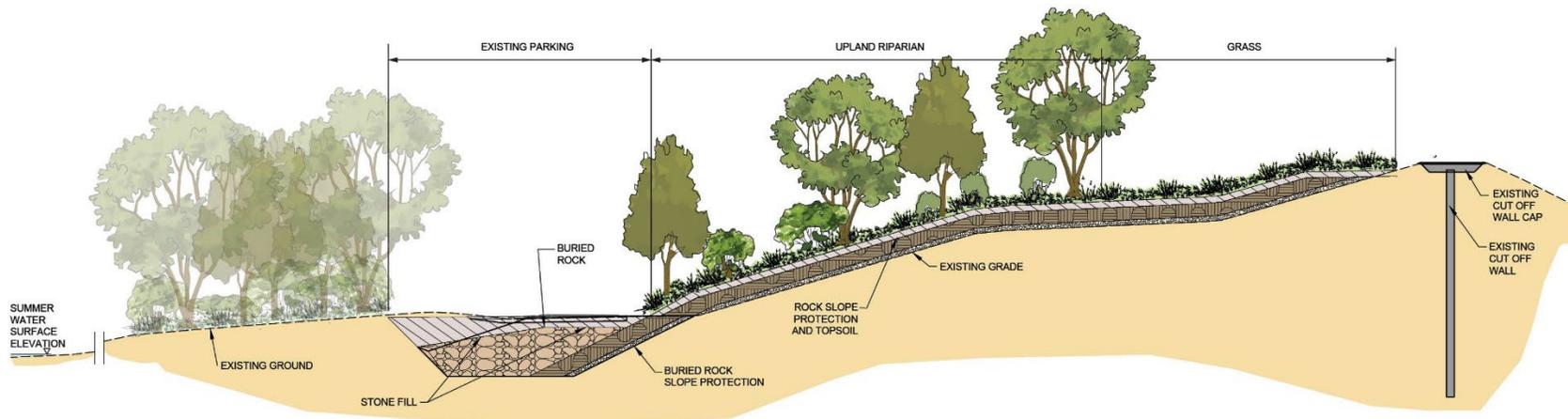
would be minimized in between different types of erosion protection treatment. There will be tiebacks within planting benches as well (Figures 3.5.2-17 and 3.5.2-18). In addition, there are locations at Site 4-1 where the Proposed Action includes a launchable toe at the riverbank toe, unlike the typical launchable toe at American River Erosion Contract 3B where the launchable toe would be at the edge of the planting bench (as shown on Figure 3.5.2-15 **Error! Reference source not found.**). This erosion protection feature would be covered in soil to allow vegetation to grow on top of it.

The design of the erosion protection features, specifically the planting benches, soil-filled revetment, and buried launchable trench, would allow for the site to be revegetated and used for onsite mitigation for riparian habitat and salmonid habitat. The description of onsite mitigation, excavation, ramps, tree removal, and use of excavated materials described under Site 3-1 apply to Site 4-1 as well. Except for the area around the launchable trench upstream of Watt Avenue, designs were able to accommodate a strip of trees between the erosion protection features and the levee toe. Similar to what was discussed with Site 3-1, ramps were designed to minimize impacts to native trees. In addition, launchable trench was strategically placed at Site 4-1 so that impacts occurred in the Watt Boat Launch parking lot and to more shrubby habitats in order to avoid more and larger trees. The launchable trench and tiebacks just downstream of Larchmont Park were also designed to preserve trees at the edge of the wetted channel. The tiebacks at this location were designed to either avoid as many trees as possible or impact the non-native black locust trees in place of native trees. Erosion protection has been designed around the Manlove Pump Station outfall.

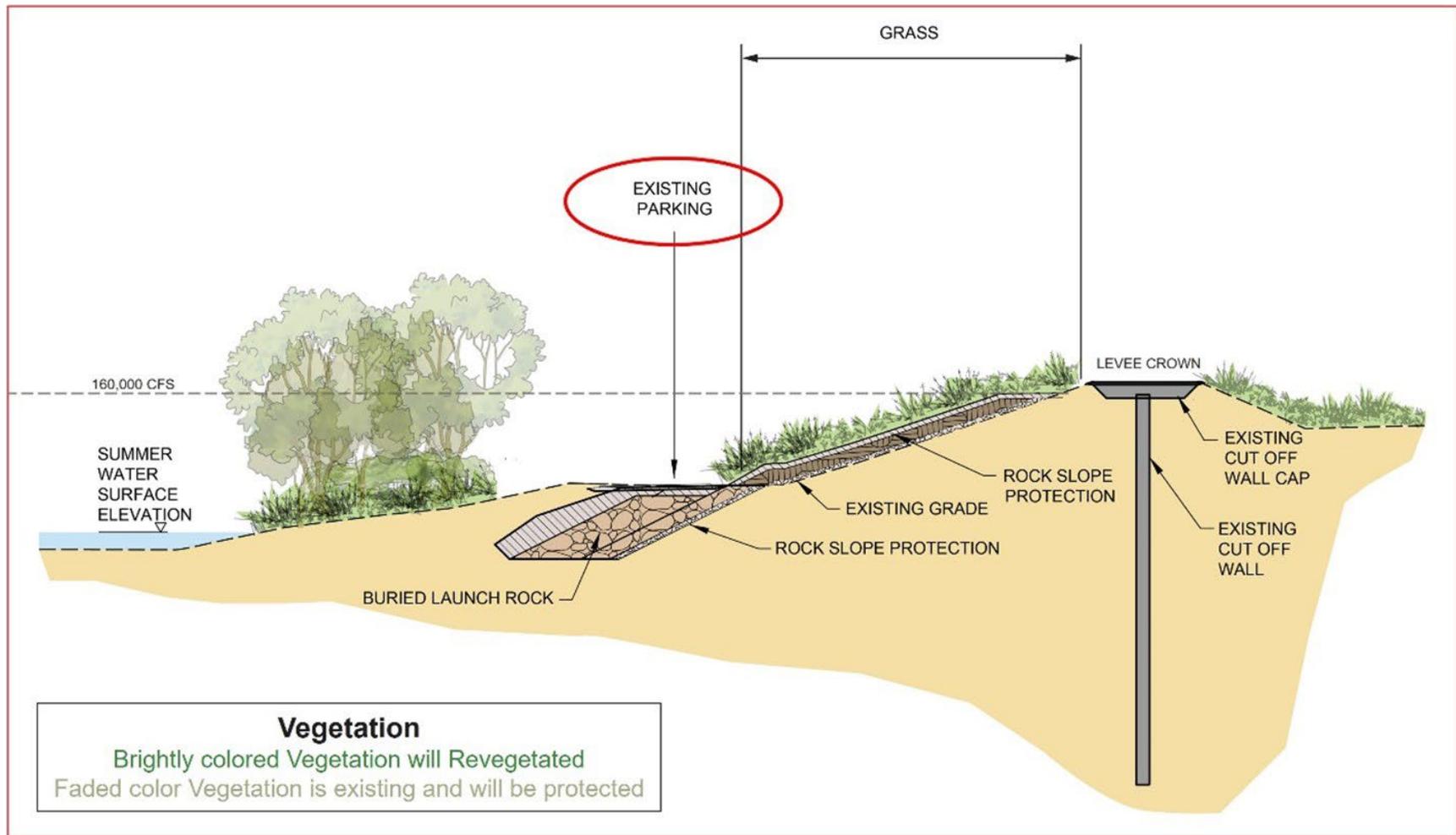


Graphical representation - Subject to Change. Revegetated condition reflective of mature state

**Figure 3.5.2-22. Example cross section of launchable trench and bank protection found at American River Erosion Contract 3B North Site 4-2**

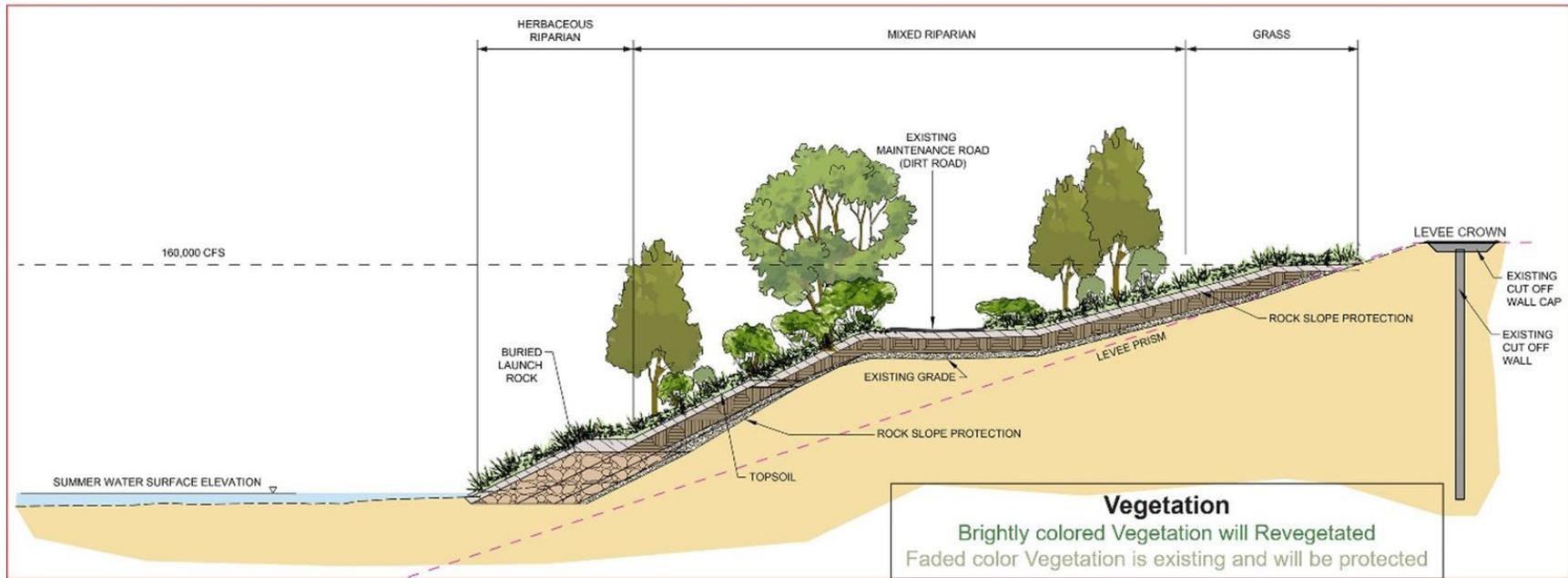


**Figure 3.5.2-23. Example cross section of launchable trench and bank protection found at American River Erosion Contract 3B South Site 4-1, just upstream of Watt Avenue Bridge**



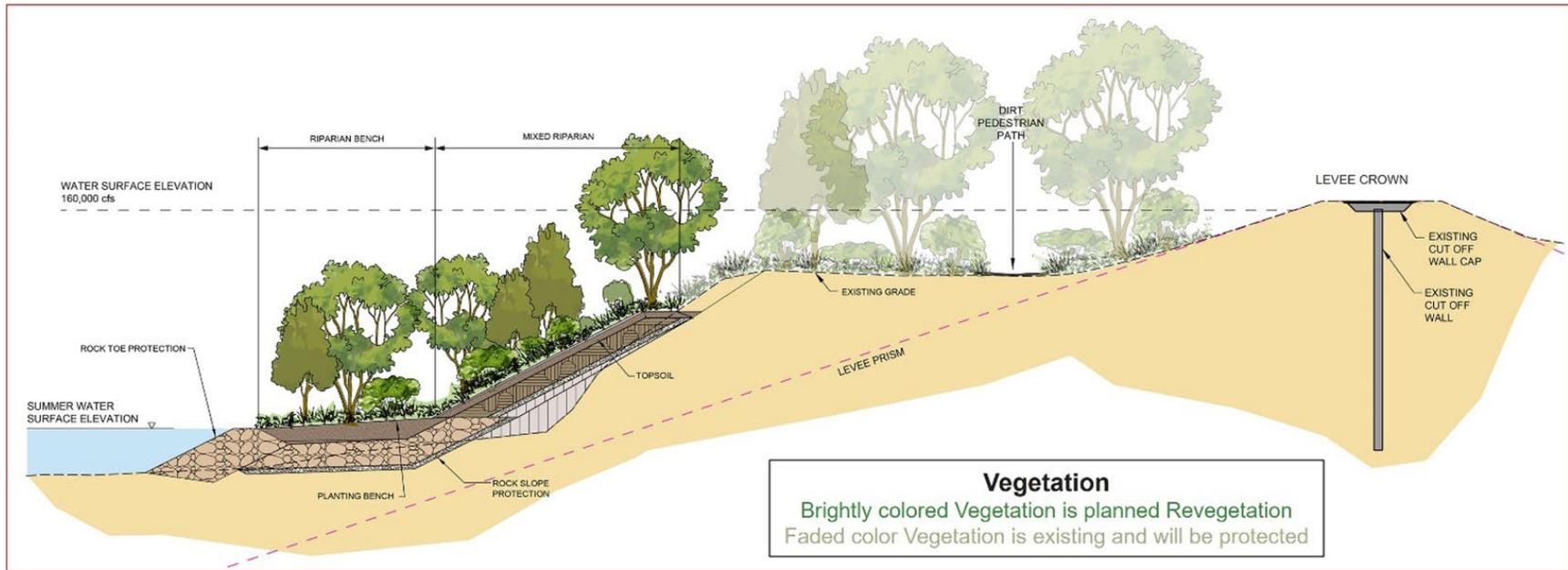
Graphical representation - Subject to Change. Revegetated condition reflective of mature state

**Figure 3.5.2-24. Example cross-section of launchable trench and bank protection found at American River Erosion Contract 3B South Site 4-1, at the Watt Avenue Boat Launch parking lot**



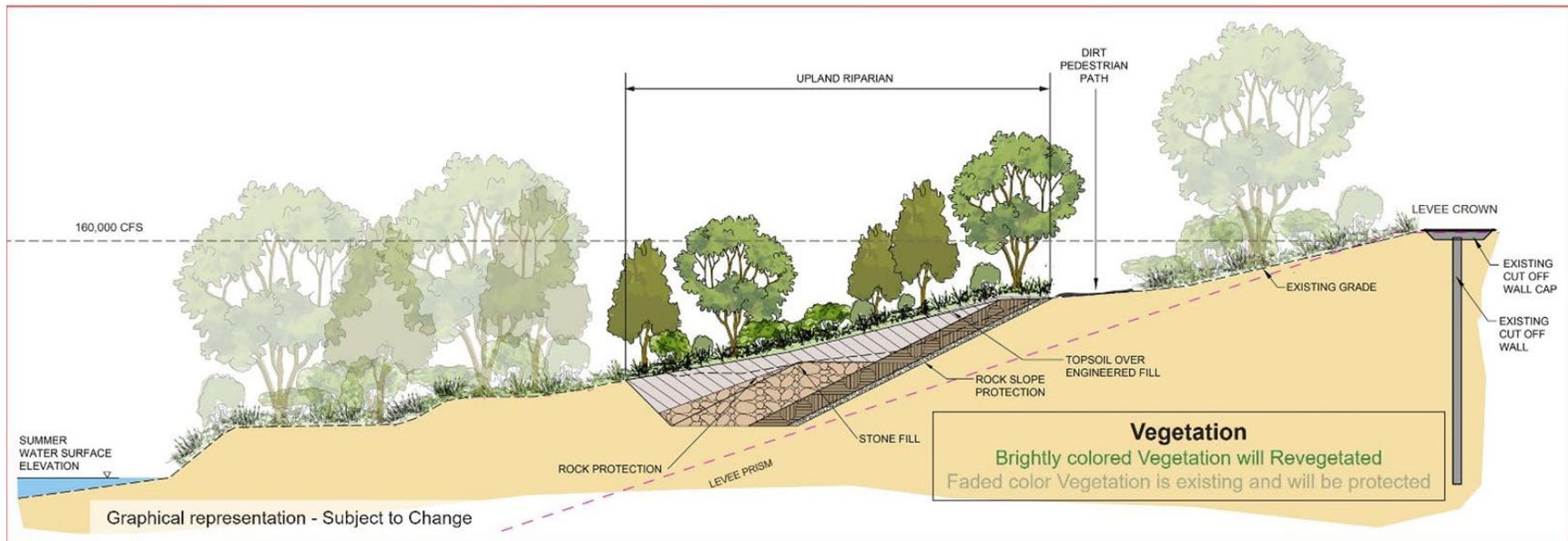
Graphical representation - Subject to Change. Revegetated condition reflective of mature state

**Figure 3.5.2-25. Example cross section of bank protection found at American River Erosion Contract 3B South Site 4-1, upstream from the Watt Avenue Boat Launch parking lot**

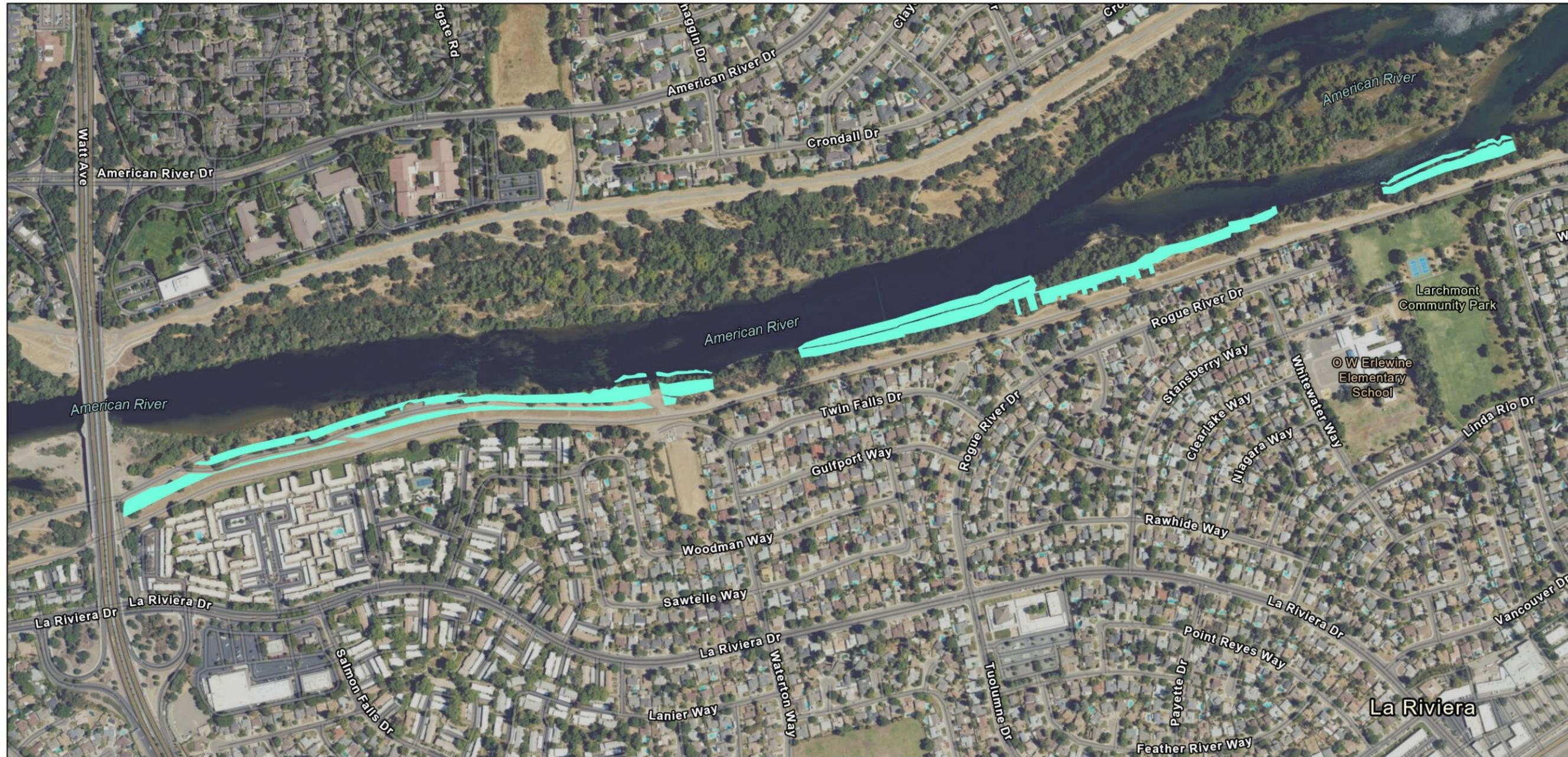


Graphical representation - Subject to Change. Revegetated condition reflective of mature state

**Figure 3.5.2-26. Example cross section of launchable toe and bank protection found at American River Erosion Contract 3B South Site 4-1, upstream from the Waterton Way River Access. This cross section can also be used as an example for launchable toe and bank protection found near Larchmont Park**



**Figure 3.5.2-27. Example cross section of launchable trench and bank protection found at American River Erosion Contract 3B South Site 4-1, downstream from Larchmont Park**



**American River Erosion Contract 3B South Site 4-1 Area to be Replanted**

 Areas to be Replanted

Updated 12/31/2024



**US Army Corps  
of Engineers®**  
Sacramento District

**Figure 3.5.2-28. Anticipated Onsite Woody Vegetation Replanting for American River Erosion Contract 3B South Site 4-1**

### *American River Erosion Contract 4B (Program Level)*

American River Erosion Contract 4B is located immediately adjacent to American River Erosion Contract 3B North and South; specifically, in between the footprint of Contract 3B and the levee crown. American River Erosion Contract 4B is intended to accomplish two goals:

- to preserve large trees on the bench which would otherwise need to be removed to prevent scour hazards, and
- to prevent outflanking of erosion protection features.

Analysis of the American River Erosion Contract 4B is presented at a conceptual (program) level since the USACE design process for this contract is in such an early phase.

#### Lone Tree Scour

During flood events, trees have been observed to induce localized erosion, or scour, around the trunk of the tree similar to bridge piers. This scour excavates a depression around the tree that, for trees located near or on the levee embankment, can extend into the levee embankment and narrow the levee inducing levee failure. This erosion risk must be addressed for USACE's flood risk reduction objectives to be met. With American River Erosion Contract 3B North Site 3-1 and American River Erosion Contract 3B South Site 4-1 designs being optimized to address erosion of the riverbank, not lone tree scour, and the lone tree scour risk being identified late in the American River Erosion Contract 3B North and South design process, the lone tree scour risk potential is being addressed as a separate contract to allow for a more selective approach to address this risk driver.

The purpose of American River Erosion Contract 4B is to address this risk to the levee while protecting these trees in place by installing erosion protection around the base of the trees. However, if engineering analyses demonstrate that a design solution to protect a given tree in place is not achievable, or if based on input from landscape architects and arborists a design solution would likely result in a given tree's death, tree removal may be required.

A total of 81 trees located on the waterside slope of the levee and within 25 feet of the waterside levee toe were initially identified for study. Preliminary evaluation of maximum scour determined that 31 trees did not need further action due to limited scour depths and/or the potential scour not extending into the levee. For the remaining 50 trees, USACE is currently conducting geotechnical studies of seepage and stability and detailed risk assessments to verify which trees pose an immediate threat to levee safety. Trees determined to not pose an immediate threat to the levee's integrity during a single high flow event will be considered safe and will be removed from further evaluation. USACE will work with certified arborists and the Technical Resources Advisory Committee (TRAC) to identify design solutions to address those trees identified as posing an immediate threat to the levee's integrity. Figures 3.5.2-29 and 3.5.2-30 illustrate these trees.



Figure 3.5.2-29. Contract 4B trees under evaluation within Segment 3-11



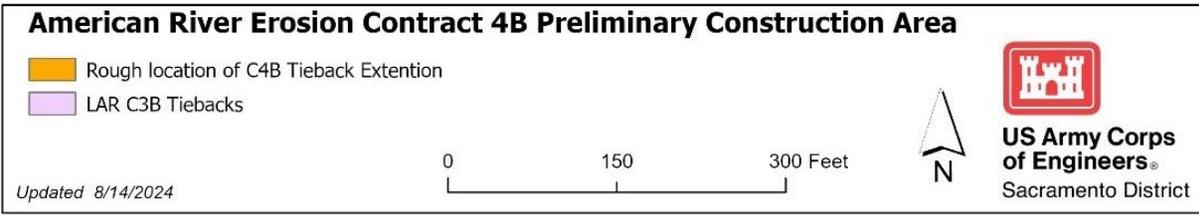
Figure 3.5.2-30. Contract 4B trees under evaluation within Segments 3-8 and 4-1

Potential design actions considered for Contract 4B to address lone tree scour include:

- No Action. Additional engineering analyses conclude that individual trees are not a risk.
- Erosion Protection. This action would place erosion resistant material around the tree to prevent, or limit, the local scour from occurring similar to scour countermeasures placed near bridge piers. Unlike bridge piers, the health of trees can be impaired if the tree roots are damaged thereby limiting excavation to place materials and total fill depth that can be placed over roots to prevent erosion. Unique treatments for different tree types and loadings will be developed for each tree type.
- Tree Removal. This action carefully considers the types of trees (native versus non-native), the size of scour depth, and the potential impact of the scour to the levee prism above the levee toe. Removal of trees is not preferred due to the short and long-term loss of riparian habitat and would likely be limited to non-native invasive vegetation or trees of poor health.

### Tieback Extensions

Within Contract 3B Segment 4-1 on the south bank of LAR, upstream of Watt Avenue, part of the erosion protection planned includes installation of rock tiebacks which serve to prevent erosion from outflanking the revetment installed at the riverbank's edge (i.e., eroding the bank/levee landward of the riverbank's edge revetment). These tiebacks can be seen in Figure 3.5.2-31, below. The locations of these tiebacks were selected to avoid impacts to existing vegetation and were intended to extend further landward into the vegetation-free zone to ensure the tiebacks ability to prevent erosion from outflanking the Contract 3B bank revetement; however, due to concerns which arose late in the design development phase of Contract 3B the tiebacks were cut short to avoid encroaching into the vegetation free zone. The concerns were specific to working in and around the vegetation which exists within the vegetation-free zone which could trigger the need for a vegetation design deviation. Given the time requirements to develop and get approval of a vegetation design deviation, USACE decided to stop the Contract 3B tiebacks outside the vegetation free zone and construct the remaining extent of the tiebacks under Contract 4B which was already planning on developing a vegetation design deviation to support preservation of trees identified as a lone tree scour risk.



**Figure 3.5.2-31. Contract 4B Tieback Extensions**

### **3.5.2.1.2 Changes to Recreational Facilities During Construction**

#### **American River Erosion Contract 3B North**

Erosion protection work would obstruct the Jedediah Smith Memorial Trail at both Site 3-1 and Site 4-2. It is anticipated that safe trail detour options can be provided either within the project footprint or in the Parkway but outside the project footprint without requiring additional major work. In addition, there is an equestrian trail that would be closed during construction at these sites.

#### **American River Erosion Contract 3B South**

There is not a paved bike trail within Site 4-1. A trail at the levee toe and the patrol road on the top of the levee are routinely used by recreationalists and would be closed to avoid conflicts during construction. Signs with trail closure locations will be posted prior to the start of work. Project Partners have coordinated with County Parks on detours when detours are needed. There are many options for recreationalists or commuters to use streets in order to find ways around construction closures. Any necessary detours would be designated in consultation with the County Parks to ensure they are safe and minimize construction conflicts.

### **3.5.2.1.3 Construction Schedule, Materials, and Equipment**

Construction materials are shown in Table 3.5.2-2 through Table 3.5.2-11, below. Excavated soil would be hauled off-site to either an existing stockpile location or to a landfill within 30 miles of the project site. The stockpile would be located on a portion of the project site that is disturbed or was previously cleared and/or used for stockpiling. Stockpile locations would be selected to avoid sensitive resources on or adjacent to the site(s). Some excavated soil from other ARCF 2016 Project may be used for project construction pursuant to Clean Water Act Section 401 permit conditions and approval by the Central Valley Regional Water Quality Control Board. Riprap would come from quarries located up to 100 miles away. Soil for planting benches would come from off-site commercial sources within 100 miles of the project site. Finally, IWM would come from sources within a 100-mile distance from the Sites. Table 3.5.2-3, Table 3.5.2-5, Table 3.5.2-7, Table 3.5.2-9, and Table 3.5.2-11 also list the number of truck loads and durations of hauling in the construction materials. All heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. All haul trucks would have 2014 or newer engines and would meet CARB's lowest option low-NOx standard. Diesel equipment will be required to use renewable diesel fuel.

Workers would access the site by regional and local roadways. Construction hours would conform with the exempt hours for construction under the city of Sacramento and county of Sacramento noise ordinances and would be Monday through Saturday from 7:00 a.m. to 6:00 p.m. and Sundays from 9:00 a.m. to 6:00 p.m. within the city limits, and Monday through Friday from 6:00 a.m. to 8:00 p.m. and Saturday from 7:00 a.m. to 8:00 p.m. in the unincorporated areas of the county.

To the greatest extent possible, existing trees will be protected in place, some of which may need to be trimmed, but some trees will be removed from the construction footprint. Site preparation may also include removing submerged instream woody debris and fallen trees within the construction footprint, although this activity will happen during the in-water work window from

July 1 through October 31. Tree removal and site preparation will occur from the top of the levee via landside access. Measures approved by NMFS, the USFWS, and the CVRWQCB to minimize turbidity from construction will be installed prior to any in-water work conducted on the waterside of the levee.

It is anticipated that work for both American River Erosion Contract 3B North and 3B South would start in 2025 with tree clearing and general site prep. Construction of the erosion protection for both American River Erosion Contract 3B North and 3B South is anticipated to take 2 years to complete and is anticipated to begin in 2026 and finish in 2027. The site where construction occurred during the previous year would be revegetated in 2027 and in 2028, and associated maintenance (such as installing an irrigation system, weeding, browse control, clean-up maintenance, and replanting dead plants) and monitoring would be done for an additional 3 years.

It is unknown at this time when American River Erosion Contract 4B work would occur, but for air and traffic analysis purposes it is assumed work would occur in 2027 concurrent with the second year of American River Erosion Contract 3B North and South work.

American River Erosion Contract 3B North, American River Erosion Contract 3B South, and American River Erosion Contract 4B would use commercial borrow sites within 100 miles of the project sites. American River Erosion Contract 4B is in early designs; consequentially, timing of this work is unknown.

**Table 3.5.2-2. American River Erosion Contract 3B North Site 3-1 Quantity Summary**

Material	QTY	Unit
Stump Removal	2,153	cubic yards
Excavation to Dispose	78,241	cubic yards
Riprap	124,830	cubic yards
Bedding Material	45,848	cubic yards
Soil Filled Riprap	66,309	cubic yards
Aggregate Base Course	2,349	cubic yards
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	61,530	cubic yards
Cobble	0	cubic yards
Asphalt Pavement	1,170	cubic yards
IWM (load size = 18 each)	566	EACH
Live Willow Cuttings (collect pole cuttings within 50 miles)	2,830	EACH

Source: USACE 2023

**Table 3.5.2-3. American River Erosion Contract 3B North Site 3-1 Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Stump Removal	108	19	6	1	Super Dump 20 cubic yards, ISX Diesel 485hp
Excavation to Dispose	7824	24	13	26	Tandem 10 cubic yards, ISX Diesel 365hp
Riprap	6241	36	3	58	Super Dump 20 cubic yards, ISX Diesel 485hp
Bedding Material	2292	36	3	22	Super Dump 20 cubic yards, ISX Diesel 485hp
Soil Filled Riprap	3315	36	3	31	Super Dump 20 cubic yards, ISX Diesel 485hp
Aggregate Base Course	235	8	22	2	Tandem 10 cubic yards, ISX Diesel 365hp
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	6153	14	13	34	Tandem 10 cubic yards, ISX Diesel 365hp
Cobble	0	36	3	0	Super Dump 20 cubic yards, ISX Diesel 485hp
Asphalt Pavement	117	6	16	2	Tandem 10 cubic yards, ISX Diesel 365hp
IWM (load size = 18 each)	31	3	1	11	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	6	3	1	2	Truck and Trailer (flatbed) Diesel 265hp

Source: USACE 2023

**Table 3.5.2-4. American River Erosion Contract 3B North Site 4-2 Quantity Summary**

Material	QTY	Unit
Stump Removal	333	cubic yards
Excavation to Dispose	7,790	cubic yards
Riprap	5,227	cubic yards
Bedding Material	0	cubic yards
Soil Filled Riprap	3,745	cubic yards
Aggregate Base Course	4,044	cubic yards
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	5,690	cubic yards
Cobble	0	cubic yards
Asphalt Pavement	270	cubic yards
IWM	0	EACH
Live Willow Cuttings (collect pole cuttings within 50 miles)	0	EACH

Source: USACE 2023

**Table 3.5.2-5. American River Erosion Contract 3B North Site 4-2 Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Stump Removal	16.6296	19	6	1	Super Dump 20 cubic yards, ISX Diesel 485hp
Excavation to Dispose	779	24	13	3	Tandem 10 cubic yards, ISX Diesel 365hp
Riprap	261	36	3	3	Super Dump 20 cubic yards, ISX Diesel 485hp
Bedding Material	0	36	3	0	Super Dump 20 cubic yards, ISX Diesel 485hp
Soil Filled Riprap	187	36	3	2	Super Dump 20 cubic yards, ISX Diesel 485hp
Aggregate Base Course	404	8	22	3	Tandem 10 cubic yards, ISX Diesel 365hp
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	569	14	13	4	Tandem 10 cubic yards, ISX Diesel 365hp
Cobble	0	36	3	0	Super Dump 20 cubic yards, ISX Diesel 485hp
Asphalt Pavement	27	6	16	1	Tandem 10 cubic yards, ISX Diesel 365hp
IWM	0	3	1	0	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	0	3	1	0	Truck and Trailer (flatbed) Diesel 265hp

Source: USACE 2023

**Table 3.5.2-6. American River Erosion Contract 3B South Site 4-1 Quantity Summary**

Material	QTY	Unit
Stump Removal	10,809	cubic yards
Excavation to Dispose	106,374	cubic yards
Riprap	50,790	cubic yards
Bedding Material	13,836	cubic yards
Soil Filled Riprap	75,704	cubic yards
Aggregate Base Course	10,140	cubic yards
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	90,042	cubic yards
Cobble	2,831	cubic yards
Asphalt Pavement	1,775	cubic yards
IWM	145	EACH
Live Willow Cuttings (collect pole cuttings within 50 miles)	3,400	EACH

Source: USACE 2023

**Table 3.5.2-7. American River Erosion Contract 3B South Site 4-1 Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Stump Removal	540.462	19	6	5	Super Dump 20 cubic yards, ISX Diesel 485hp
Excavation to Dispose	10637	24	13	35	Tandem 10cy, ISX Diesel 365hp
Riprap	2539	36	3	24	Super Dump 20 cubic yards, ISX Diesel 485hp
Bedding Material	692	36	3	7	Super Dump 20 cubic yards, ISX Diesel 485hp
Soil Filled Riprap	3785	36	3	36	Super Dump 20 cubic yards, ISX Diesel 485hp
Aggregate Base Course	1014	8	22	6	Tandem 10 cubic yards, ISX Diesel 365hp
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	9004	14	13	50	Tandem 10 cubic yards, ISX Diesel 365hp
Cobble	142	36	3	2	Super Dump 20 cubic yards, ISX Diesel 485hp
Asphalt Pavement	177	6	16	2	Tandem 10 cubic yards, ISX Diesel 365hp
IWM	8	3	1	3	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	7	3	1	3	Truck and Trailer (flatbed) Diesel 265hp

Source: USACE 2023

**Table 3.5.2-8. American River Erosion Contract 4B RM 8.6 Quantity Summary**

Material	QTY	Unit
Soil Filled Riprap	2,696	cubic yards
Cobble, Gravel, or Other Smaller Rock	219	cubic yards

Source: USACE 2023

**Table 3.5.2-9. American River Erosion Contract 4B RM 8.6 Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Soil Filled Riprap	159	36	3	2	Super Dump 20 cubic yards, ISX Diesel 485hp

Source: USACE 2023

**Table 3.5.2-10. American River Erosion Contract 4B RM 9.8 Quantity Summary**

Material	QTY	Unit
Soil Filled Riprap	5,730	cubic yards
Cobble, Gravel, or Other Smaller Rock	81	cubic yards

**Table 3.5.2-11. American River Erosion Contract 4B RM 9.8 Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Soil Filled Riprap	318	36	3	3	Super Dump 20 cubic yards, ISX Diesel 485hp

Source: USACE 2023

## Haul Routes and Staging Areas

### *Haul Routes*

#### American River Erosion Contract 3B North

##### Site 3-1

Construction materials, including riprap, bedding, gravel, soil, and IWM, would be hauled to the project site from either I-80 or from U.S. Highway 50 (U.S. 50) using local roads including Howe Avenue, Watt Avenue, Fair Oaks Boulevard, University Avenue, Moffatt Way, Clunie Drive, Kadema Drive, Hurley Way, Ethan Way, Exposition Boulevard, Arden Way, and American River Drive (Figure 3.5.2-3). Haul trucks could need to use the top of levee, dirt maintenance road at the levee toe or the paved bike trail. The proposed routes could be modified based on consultation with the city of Sacramento and Sacramento County. The main access points to the levee would include University Park, Kadema Drive, and the Wilhaggin Drainage Pump Station (Figure 3.5.2-3, Figure 3.5.2-14). Excavation and regrading beneath and near the Watt Avenue Bridge would be required to provide adequate clearance for construction traffic. Safety measures such as clearance bars, speed limits signs, and/or flaggers would be implemented near the Watt Avenue Bridge to ensure the construction traffic does not impact existing infrastructure. Some work such as tree trimming, minor grading, paving, adding temporary load distributing platforms, and adding aggregate may be done along the haul routes to allow access to the site. Some ramps would be left for permanent access for use by the NFS, as they perform O&M activities.

##### Site 4-2

Hauling information described previously under Site 3-1 would also apply to Site 4-2, except that the local roads used for haul routes and access points would differ. Haul routes for construction materials would use local roads such as Howe Avenue, Watt Avenue, Fair Oaks Boulevard, Estates Drive, Harrington Way, Jacob Lane, and American River Drive (Figure 3.5.2-5). The main access points to the levee would include the Wilhaggin Drainage Pump Station, Estates Drive, and Jacob Lane (Figure 3.5.2-5, Figure 3.5.2-14).

#### American River Erosion Contract 3B South

##### Site 4-1

Haul routes for construction materials would use local roads including Howe Avenue, Watt Avenue, La Riviera Drive, Rio Bravo Circle, and Folsom Boulevard (Figure 3.5.2-7). The main access points to the levee would include the Watt Avenue Boat Launch Area, Larchmont Community Park (for vehicles within the staging area, access from local roads to the staging area

at Larchmont Park will be prohibited for haul trucks), and the Mayhew Drain (Figure 3.5.2-7, Figure 3.5.2-14).

### American River Erosion Contract 4B

Haul routes described for American River Erosion Contract 3B South Site 4-1 and American River Erosion Contract 3B North Site 3-1 would be used to access the sites. Ramps may need to be built to access the American River Erosion Contract 4B sites; either existing ramps would be reused, or new ramps would be located within the construction footprints identified in Figure 3.5.2-11 and Figure 3.5.2-12. No tree removal would be required for construction of new ramps.

### *Staging Areas*

Staging areas are identified below based on the nearest erosion improvement sites, but any of the staging areas may be used for different sites, different contracts, future ARCF 2016 Project contracts, or mitigation projects. Once work is complete, staging areas would be returned to their initial conditions. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas.

### American River Erosion Contract 3B North

#### Site 3-1

Staging for Site 3-1 would occur at University Park, and within the American River Parkway just south of University Park and downstream of Watt (Figure 3.5.2.3). Haul route access would go through University Park to the parking lot just north of University Park. Up to seven trees would likely need to be removed for access. University Park would be closed during construction. Finally, Wilhaggin Drainage Pump Station could be used for Site 3-1 staging. These staging areas could be used for stockpiling.

#### Site 4-2

Staging for Site 4-2 would occur at the detention basin near the Wilhaggin Drainage Pump Station, and within the American River Parkway just upstream of the Rio Americano High School (Figure 3.5.2.5). These staging areas may be used for stockpiling.

### American River Erosion Contract 3B South

#### Site 4-1

Staging for Site 4-1 would occur at the parking lot under Watt Avenue and Larchmont Community Park (Figure 3.5.2.7). Larchmont Community Park may also be used for stockpiling. Larchmont Park would be accessed from the levee. Only the soccer fields in the northern part of Larchmont Park would be closed during use of the park for staging; other areas of the park would remain open. Possible secondary staging areas that could be utilized for staging if access at Larchmont Park falls through could be a private parcel along Folsom Boulevard or the Manlove Pump Station Drainage basin. However, these locations would only be considered if Larchmont Park is not available since the parcel along Folsom Boulevard is not near the project site and would lengthen haul routes and since the Manlove Pump Station Drainage Basin could need to be utilized for stormwater management if it is a very wet year.

## American River Erosion Contract 4B

Staging areas described for American River Contract 3B South Site 4-1 are anticipated to be used for American River Erosion Contract 4B.

### **3.5.2.1.4 Operations and Maintenance**

Once construction is complete, performance standards met, and habitat successfully established, the NFS and local maintaining agency (LMA) would be responsible for the O&M of the project sites. All land used for staging areas would return to original ownership. The NFS would retain responsibility for O&M and would be responsible for maintaining the levee and the proposed flood improvements. SAFCA would be responsible for long-term O&M of on- and off-site mitigation features. Routine O&M activities would consist of inspections, mowing or herbicide, burrowing rodent control, slope repair, and patrol road reconditioning

## American River Erosion Contract 4A

### **3.5.2.2 Features of the Proposed Action and Construction Details**

American River Erosion Contract 4A would include construction of an armored berm approximately 100 feet wide on the water side of the levee near RM 2.0. This feature would be constructed on the right bank of the American River immediately upstream of Jedediah Smith Memorial Trail's undercrossing of the California State Route 160 bridge. This berm would disrupt the bike trail, so American River Erosion Contract 4A also includes a permanent bike trail reroute through the American River Parkway.

#### **3.5.2.2.1 Erosion Protection**

American River Contract 4A levee work would be conducted on the right bank of the Lower American River near RM 2.0 and upstream of the State Route 160 bridges (Figure 3.5.3-1). To reduce the risk that high-velocity flood waters could scour the levee around the SR160 bridge piers and destabilize the levee, a berm is proposed upstream of the bridge to deflect high-velocity flood waters away from the levee slope. Due to the physical constraints at this location, the berm footprint would impact a portion of an existing wetland and would extend up the levee. The berm would also block the current alignment of the Jedediah Smith Memorial Trail. The berm would be armored to prevent erosion (Figure 3.5.3-5). In addition to constructing the berm, American River Contract 4A includes ramps along haul routes to access the berm area, which would require vegetation removal. There is a 12-inch City of Sacramento water line crossing beneath the proposed berm. Active pressure flow pipes are not typically permitted under levees. The water line may need to be re-routed around the berm. This approximate 200-foot relocation would need to occur in stages before and after construction of the bike lane reroute and before berm construction. If the relocated pipe material contains asbestos, hazardous material mitigation would be required during construction.

This berm may cause a small increase in velocities near the UPRR and SR-160 bridges. If coordination with UPRR or Caltrans determines that additional scour resistance measures are required to protect the bridge piers, additional rock revetment may be placed around the bridge bents or columns. Placement of scour rock around the Caltrans bridge piers for bridge and levee protection would require a Caltrans Encroachment Permit for construction. Rock revetment

material that may be required for these scour resistance measures is included in the total in Table 3.5.3-1 through Table 3.5.3-6.

### **3.5.2.2.2 Bike Trail Reroute**

The proposed berm would block the current path of the Jedediah Smith Memorial Trail. To allow continued use of the Jedediah Smith Memorial Trail in this area, a new permanent paved bike trail route would be built on the south side of the wetland, following an existing equestrian, hiking, and off-road bike trail (Figure 3.5.3-1, and Figure 3.5.3-4 in the Map listed as Proposed Action bike trail). New signage and gates would be added to direct bike traffic the correct direction. Constructing this route would require tree and vegetation clearing, regrading, raising the existing road, and paving. Drainage features such as culverts or precast arches may need to be added. During construction, additional temporary bike detours within the construction footprint or along city streets may be required (Figure 3.5.3-2). Real estate acquisition would be required from the UPRR. These detours may require temporary closure of Del Paso Boulevard between Northgate Boulevard and SR 160 exit onto Del Paso Boulevard. Additionally, in order to make detours safe for street bike use the routes would need to be regraded, routes would need to be paved, signs and traffic signals would need to be placed, and fencing or barriers would need to be installed. Once complete, the existing bike trail path on the levee toe (the portion being rerouted) may be decommissioned and turned into a gravel road. In addition, if only a short time frame of closure is needed, a bike transit may be used to transport bikes and bike trail users around the closed area.

### **3.5.2.2.3 Construction Schedule, Materials, and Equipment**

Materials sources and details would be like those described in Section 3.5.2.1.3, “Construction, Schedule, Materials, and Equipment” for American River Erosion Contract 3B North and South. If construction occurs when the wetland is inundated or during periods of high groundwater, dewatering will occur, potentially including the use of cofferdams or water bladder dams. Since the American River Erosion Contract 4A work is not near residences, night work could be an option if the night work would reduce recreational impacts on the Jedediah Smith Memorial Trail. Since the new berm will not allow direct access to an existing water line, the portion of the water line under the new berm will be removed and relocated around the southern part of the berm and reconnected with its original alignment. If any other utility line is found during construction, it would be relocated as well.

Work, both tree clearing and construction, is anticipated to start for American River Erosion Contract 4A in 2026 and end in 2027 though work may end up being pushed back a year (beginning with tree clearing in 2027 and finishing in 2028). If the site needs to be revegetated, the following year the site would be revegetated and associated maintenance (such as installing an irrigation system, weeding, browse control, clean-up maintenance, and replanting dead plants) and monitoring would continue for three years.

Once work is completed staging areas and access areas would be returned to preexisting conditions. The project site would be reseeded with native grasses.

**Table 3.5.2-11. American River Contract 4A Proposed Action Berm Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	433	CY
Remove Asphalt	75	CY
Quarry Stone Type C	5,980	CY
Choke Stone	260	CY
Geotextile Fabric	9,230	SF
Aggregate Base Course	390	CY
Imported Fill	7,280	CY
Seeding & Mulching	67,600	SF
Relocate 12" Water line (Disposal)	800	CY
Relocate 12" Water line (Imported Fill)	800	CY
Structure Excavation (Bridge)	4,817	CY

Notes: Cubic Yards (CY), Square Feet (SF)

Source: USACE

**Table 3.5.2-12. American River Contract 4A Proposed Action Berm Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	44	8	8	1	Tandem 10cy, ISX Diesel 365hp
Remove Asphalt		1		1	322B Excavator
Remove Asphalt	7	2	8	1	Tandem 10cy, ISX Diesel 365hp
Quarry Stone Type C		1		4	CS-323C Compactor
Quarry Stone Type C		1		4	D4 Bulldozer
Quarry Stone Type C		1		4	322B Excavator
Quarry Stone Type C	598	24	3	9	Tandem 10cy, ISX Diesel 365hp
Choke Stone		1		1	CS-323C Compactor
Choke Stone		1		1	D4 Bulldozer
Choke Stone		1		1	322B Excavator
Choke Stone	26	4	8	1	Tandem 10cy, ISX Diesel 365hp
Aggregate Base Course		1		2	CS-323C Compactor
Aggregate Base Course		1		2	D4 Bulldozer
Aggregate Base Course		1		2	322B Excavator
Aggregate Base Course	39	4	8	2	Tandem 10cy, ISX Diesel 365hp
Imported Fill		1		8	CS-323C Compactor
Imported Fill		1		8	D4 Bulldozer
Imported Fill	728	12	8	8	Tandem 10cy, ISX Diesel 365hp
Geotextile Fabric		1		1	Truck and Trailer (flatbed) Diesel 265hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mob/Demob	6	8	1	2	Tractor Trailer (flatbed) Diesel 430hp
Relocate 12" Water line (Disposal)		2		2	322B Excavator
Relocate 12" Water line (Disposal)	80	8	8	2	Tandem 10cy, ISX Diesel 365hp
Relocate 12" Water line (Imported Fill)		1		3	CS-323C Compactor
Relocate 12" Water line (Imported Fill)		1		3	322B Excavator
Relocate 12" Water line (Imported Fill)	80	4	8	3	Tandem 10cy, ISX Diesel 365hp
Structure Excavation (Bridge)		1		6	322B Excavator
Structure Excavation (Bridge)	482	12	8	6	Tandem 10cy, ISX Diesel 365hp

Source: USACE

**Table 3.5.2-13. American River Contract 4A Proposed Action Bike Re-route Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	3,794	CY
Aggregate Base Course	5,091	CY
Imported Fill	6,845	CY
Hot Mix Asphalt (Type A)	1,149	CY
Seeding & Mulching	307,343	SF
6" Two-component Paint Traffic Stripe	10,244	LF

Notes: Cubic Yards (CY), Square Feet (SF), Linear Feet (LF)  
Source: USACE

**Table 3.5.2-14. American River Contract 4A Proposed Action Bike Re-route Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/D ay/Truck	#Days	Truck Capacity
Clearing & Grubbing		2		2	D4 Bulldozer
Clearing & Grubbing		1		2	902 Front End Loader
Clearing & Grubbing	190	12	8	2	Tandem 10cy, ISX Diesel 365hp
Aggregate Base Course		1		3	CS-323C Compactor
Aggregate Base Course		1		3	140H Grader 185 HP
Aggregate Base Course		1		3	D4 Bulldozer
Aggregate Base Course	509	24	8	3	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	115	16	8	1	Tandem 10cy, ISX Diesel 365hp
Imported Fill		1		4	D4 Bulldozer
Imported Fill		1		4	CS-323C Compactor
Imported Fill	684	24	8	4	Tandem 10cy, ISX Diesel 365hp
Seeding & Mulching		2		1	Truck and Trailer (flatbed) Diesel 265hp
6" Two-component Paint Traffic Stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mob/Demob	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

Source: USACE

**Table 3.5.2-15. American River Contract 4A Proposed Action Temporary Bike Detour  
General Quantity Summary**

Material	Quantity	Unit
Aggregate Base Course	2,467	CY
Hot Mix Asphalt (Type A)	1,118	CY
Temporary Railing, Type K	2,366	LF
Temporary Traffic Stripe (Paint)	12,168	CY
Remove Painted Traffic Stripe	1,690	CY
Temporary Portable Traffic Signal	5	EA

Notes: Cubic Yards (CY), Linear Feet (LF), Each (EA)  
Source: USACE

**Table 3.5.2-16. American River Contract 4A Proposed Action Temporary Bike Detour  
General Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/ Day/ Truck	#Days	Truck Capacity
Aggregate Base Course		1		2	CS-323C Compactor
Aggregate Base Course		1		2	140H Grader 185 HP
Aggregate Base Course		1		2	D4 Bulldozer
Aggregate Base Course	247	24	8	2	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	112	16	8	1	Tandem 10cy, ISX Diesel 365hp
Temporary Railing, Type K		1		1	Truck Mounted Crane
Temporary Railing, Type K (install)	20	4	5	1	Tractor Trailer (flatbed) Diesel 430hp
Temporary Railing, Type K (install)	20	4	5	1	Tractor Trailer (flatbed) Diesel 430hp
Temporary Traffic Stripe (Paint)		1		1	Tractor Trailer (flatbed) Diesel 430hp
Remove Painted Traffic Stripe		1		1	Tractor Trailer (flatbed) Diesel 430hp
Temporary Portable Traffic Signal		1		1	Tractor Trailer (flatbed) Diesel 430hp
Mob/Demob	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

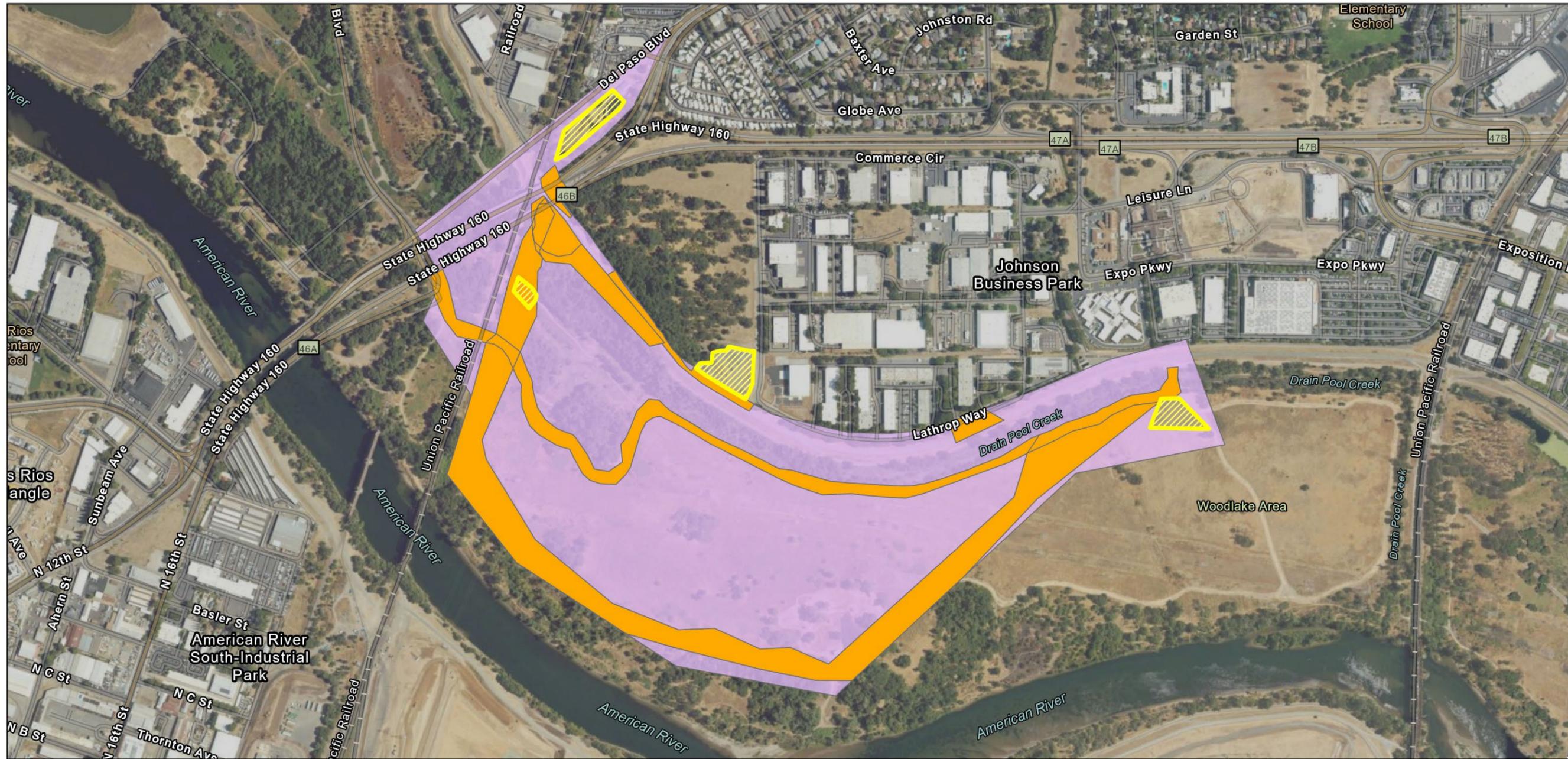
Source: USACE

#### **3.5.2.2.4 Haul Routes and Staging Areas**

Potential haul routes for riprap, gravel, and soil would be from State Route 160, Business 80, or I-5 along local roads including Del Paso Boulevard, Arden Way, Richards Boulevard, Expo Parkway, Leisure Lane, Commerce Circle, and Lathrop Way (Approximately haul routes are approximately 2.25 miles) (Figure 3.5.3-3). The main access points to the levee would include Del Paso Boulevard, Lathrop Way and Expo Parkway (Figure 3.5.3-1 and Figure 3.5.3-3). Haul truck would use both the top of levee and the bike trail at the levee toe. The final route would be finalized with the City of Sacramento and Sacramento County in the Transportation Plan. Some work such as tree trimming, minor grading, paving, and adding aggregate may need to be done along the haul routes to allow access to the site.

Potential staging for American River Contract 4A would occur at Alpha Brother's Towing (796 Del Paso Boulevard), a vacant parcel on Lathrop Way, and within the American River Parkway near Costco and adjacent to the railroad (Figure 3.5.3-1) for a total of 43,560 Square Feet. Activities likely to occur at the staging sites would likely include access, equipment storage, material storage, construction office, water storage, and wood chipping.

These staging areas would also be used for stockpiling if necessary. If needed, a commercial building or warehouse within 2 miles of the project site may be used for the project construction office.



**American River Erosion Contract 4A Project Footprint**

- Project Impact**
- Construction Buffer
  - Construction Access
  - Staging
- Updated 4/10/2024



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Sacramento District

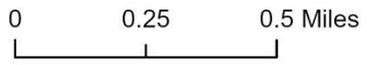
**Figure 3.5.2-32. American River Contract 4A Project Footprint**



**American River Erosion Contract 4A Temporary Bike Detours**

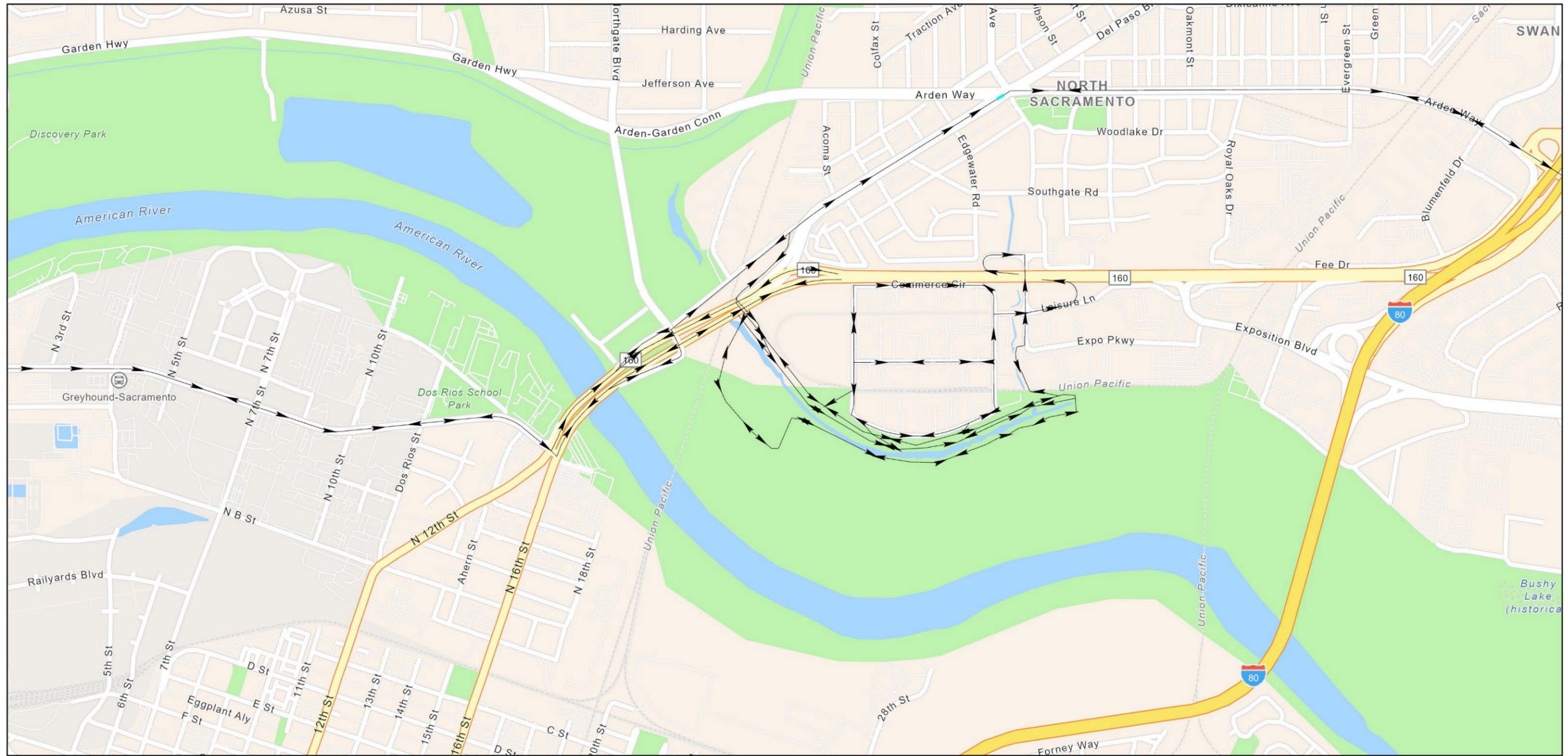
 Bike Detours

Updated 7/11/2023



**US Army Corps of Engineers**  
Sacramento District

**Figure 3.5.2-33. American River Erosion Contract 4A Potential Temporary Bike Detours**



**American River Erosion Contract 4A Haul Routes**

— Haul Route

Updated 7/11/2023

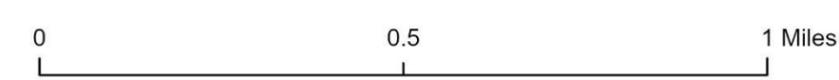
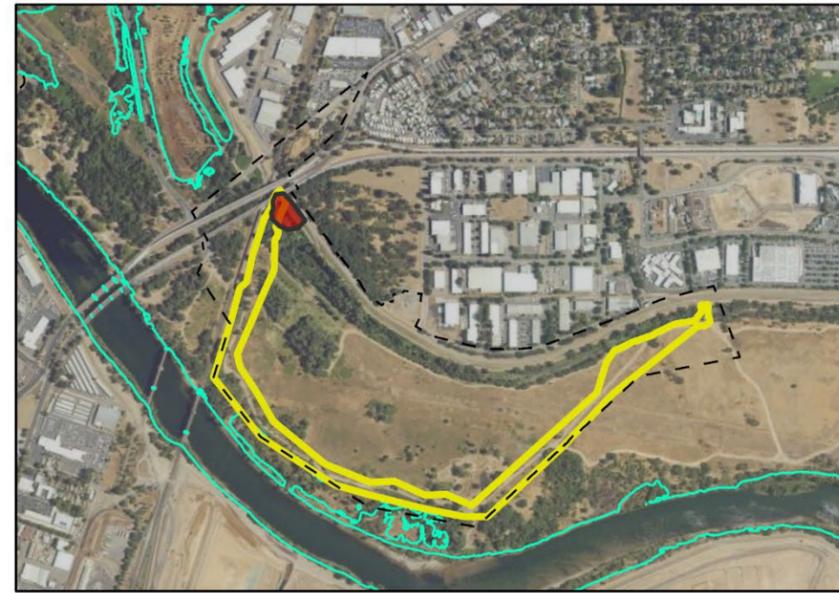
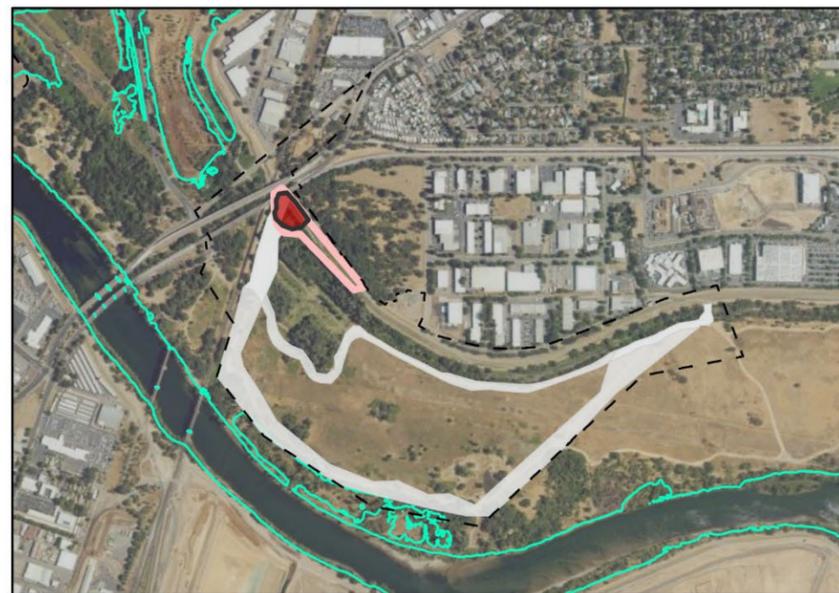


Figure 3.5.2-34. American River Contract 4A Haul Routes



**American River Erosion Contract 4A Alternatives**

- OHWM
- Proposed Action Berm
- Proposed Action Bike Reroute
- Alternative 3a
- Alternative 3b
- Alternative 3c
- Alternative 3d
- Temporary Bike Trail Detour Options
- 4A Project Site

Updated 4/10/2024

0 0.25 0.5 Miles



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**Figure 3.5.2.35. American River Erosion Contract 4A Alternative Footprints**

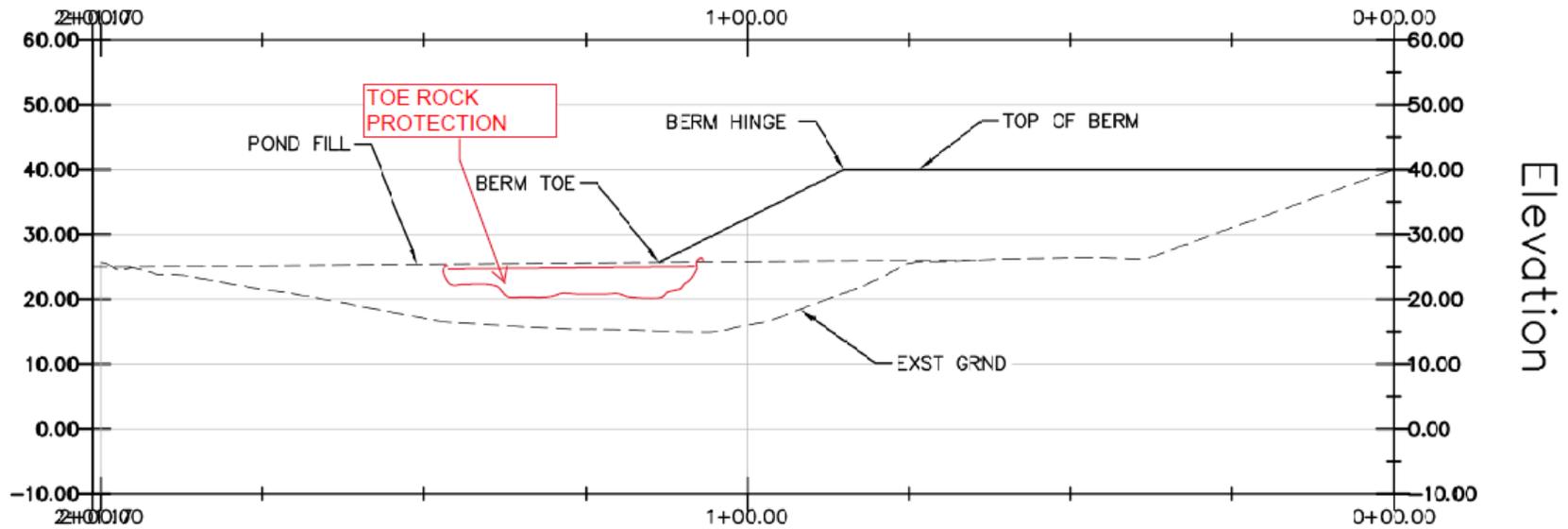


Figure 3.5.2-36. American River Erosion Contract 4A Example Berm Cross-section

### 3.5.2.2.5 Operations and Maintenance

O&M would be as described in Section 3.5.2.1.5, “Operations and Maintenance,” of American River Contract 3B.

### 3.5.2.3 Proposed Action and Design Refinements for the American River Contract 4A Improvements

Table 3.5.3-7. identifies which components of the Proposed Action for the American River Contract 4A Improvements are already authorized by the 2016 GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

**Table 3.5.2-17. No Action Alternative and Design Refinement Comparison for American River Contract 4A Improvements**

Project Component	NEPA Status
Erosion Protection Location	Design Refinements
Erosion Protection Method	Design Refinements
Staging Areas	Design Refinements
Haul Routes	Design Refinements
Vegetation Removal	No Action
Offsite Mitigation Sites on the American River	VELB: No Action Riparian: Design Refinements

Source: USACE 2022a, Adapted by GEI

## 3.5.3 Sacramento River Erosion Contract 3

### 3.5.3.1 Features of the Proposed Action and Construction Details

Sacramento River Erosion Contract 3 includes three sites (7, 8 and 9) totaling 2.8 miles between river miles 47.3 and 53.1 in Sacramento’s Pocket neighborhood. Sump 70, which is owned by the City of Sacramento, would be protected in place. The planned erosion protection method for all sites includes placement of rock revetment on the left (east) riverbank to prevent erosion and possible failure of the levee protecting the adjacent Pocket neighborhood. Quarry stone revetment would be placed on-grade along the riverbank between the riverbed and the summer water surface elevation to protect against scour and erosion during high river flows. The design would incorporate a launchable rock toe, consisting of a thicker layer of quarry stone along the riverbed. The launchable rock toe is designed to deploy and fill any eroded areas during high flows, protecting further erosion from occurring. To protect against boat wake erosion during the peak recreation season, quarry stone would be placed on the shoreline above the summer water surface elevation to slightly above the boat wake zone. This stone would feature soil fill to cover the voids in the rock and would be hydroseeded with grasses and forbs. IWM would be placed along the shore to provide shaded riverine aquatic habitat. The IWM will be placed at least 50 feet from the private boat docks. Rock tiebacks would be installed perpendicular to the river’s flow to provide additional erosion protection for the upper banks. Tiebacks would be spaced intermittently, as needed, and eliminate the need for continuous rock protection up to the top of the levee. Figure 3.5.4-1 Figure and Figure 3.5.4-2 show the approximate number and location

of tiebacks. The launchable rock toe and tiebacks are design refinements that were not previously analyzed in the ARCF GRR FEIS/EIR.

The design includes features to replace aquatic habitat impacted by the project. For the reestablishment of riparian vegetation, soil-filled planting benches would be incorporated into the rock revetment in areas where the slope allows. IWM consisting of whole trees would be anchored into the bank revetment at the summer water surface elevation to provide shelter and shading for fish. The IWM would be placed at least 50 feet from the private boat docks.

The anticipated method of construction has changed from what was described in the ARCF GRR FEIS/EIR, which previously stated that all construction work would occur from equipment stationed on barges. The anticipated method of construction for the Proposed Action would still include equipment stationed on barges, but equipment would also leave the barges to place rock along the shoreline.

### **3.5.3.1.1 Construction Schedule, Materials, and Equipment**

Construction of the erosion protection measures would be accomplished from the river by equipment on barges or by equipment accessing the project footprint from the barge. Materials would be hauled to the project location by barge. The two northern sites are anticipated to be constructed during July – October in 2026, and the southern site is anticipated to be constructed July – October in 2027. Tree clearing (completed through a separate service contract) would occur during the fall or winter prior to the relevant site's construction season. Construction of Sacramento River Erosion Contract 3 would include the following actions:

- Set up designated temporary construction access and staging areas and mobilize temporary facilities (offices and restrooms) to the staging areas.
- Protect trees and structures that are not removed with fencing or signage.
- Clear and grub the work area, including, but not limited to, removing and or trimming trees, vegetation, and encroachments along the levee embankment.
- There are 6 docks located in the project footprint. If any of the dock owners elect not to remove their docks, contractor would remove and dispose remaining docks during site preparation (piers and piles would not be removed).
- Identify utility locations for protection during project activities.
- Construct bank protection, planting benches, and IWM. Equipment would operate from barges or be brought onto the shore from the barge.
- Demobilize construction equipment. Leave the site free of garbage in a condition similar to the pre-project condition. Seed and place erosion protection measures on the levee landside slope and other disturbed areas.

#### ***Site Preparation, Access, and Staging***

During November to February prior to the 2026 and 2027 construction years, trees within the erosion protection footprint being constructed that year would be removed. Selected trees outside

this footprint may require trimming or removal to ensure sufficient clearance for equipment operation. Tree removal would occur from equipment stationed on the top of the levee; equipment would not be permitted to drive off the levee top. Tree stumps would be left in place until reconstruction activities to prevent potential scour points. Cut trees would be hauled up slope by a crane or pulley system, chipped, and hauled away by a dump truck. Mobilization, installation of erosion protection measures, and out-of-water earthwork and improvements would begin in June or early July. Prior to initiating construction, the project area would be enclosed by a temporary fence and lighting would be installed to limit entry into the site and ensure site safety and security. In-water site preparation would occur from July 1 to October 31 and may include removing submerged instream woody debris and fallen trees within the construction footprint. Measures approved by NMFS and USFWS to minimize turbidity from construction would be followed prior to any in-water work conducted on the waterside of the levee.

A staging area at Garcia Bend Park would be used for construction offices, worker vehicle parking, and two boats. Landside construction access (entrance and exit) would occur along the levee top. Limited landside staging would occur on the levee crown and levee road. The construction crews' personally owned vehicles, occasional delivery vehicles, hydroseeding vehicles, equipment used for revegetation, tree removal vehicles and equipment, and construction facilities including the fencing and lighting as well as portable toilets and hand washing stations may be located within the landside staging area.

Waterside construction would be accessed by barge. Boaters and other water-borne users of the river would be alerted to the construction activities by warning buoys placed at both the up- and downstream ends of work areas.

Barges would be pre-loaded with construction materials and construction equipment for in-water staging. The barges would be loaded up to 96 miles downstream and may be rafted together and brought to the project site by a combination of push and/or tugboat. Barges loaded with materials would be brought alongside the crane/excavator barge, and then the material barges would rotate as they are emptied and reloaded. Material would not be stored on land. Placement of material would either be by crane with a 100-foot boom or by excavator with long stick and/or boom. Excavators may also be offloaded from the barges onto the shore to place rock from the bank. It is expected that two barges with cranes/excavators would work simultaneously when placing rock in-water and onto the bank.

The construction contractor would acquire construction materials from outside sources. The physical characteristics of this material would meet USACE requirements as established in the project plans and specifications. The material sources also must have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

The construction contractor would be responsible for selecting a disposal site located outside the construction limits. This disposal site must have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

Table 3.5.4-1 presents the material requirements for construction of the proposed Sacramento River Erosion Contract 3.

**Table 3.5.3-1 Materials Required for Sacramento River Erosion Contract 3**

Material Type	Site 7 Quantity	Site 8 Quantity	Site 9 Quantity	Total Quantity
Grade Stone C (cy)	26,800	38,300	135,000	200,100
Soil-Filled Riprap (cy)	6,900	11,100	17,700	35,700
Class 2 Aggregate Base (cy)	600	300	1,200	2,100
Topsoil (cy)	2,100	500	3,000	5,600
Seeding (acres)	2.0	2.5	4.0	8.5
Beaver Fencing (feet)	800	900	2,300	4,000
Instream Woody Material (each)	350	520	1,260	2,130

Note: cy = cubic yards  
Source: USACE 2023

### *Construction Workers and Schedule*

Construction workers would access the work areas along existing freeways, highways, county and city roads, and levee patrol roads. Workers would park at the staging area at Garcia Bend Park and access their equipment by boat, utilizing the park’s boat ramp. Construction hours would comply with the City of Sacramento noise ordinance, which allows construction from 7:00 a.m. to 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. to 6:00 p.m. on Sundays. No work or hauling would take place outside of the construction exemption times without permission applied for and given by the City of Sacramento.

Tree removal is expected to begin in November and conclude by February 14 preceding each construction season. Construction is likely to occur in two phases during each year of construction. The first phase would include mobilization, installation of surface erosion protection measures, and out-of-water earthwork and improvements. This phase would start in June or early July as the winter high flow recedes and the likelihood of rainfall reduces. The construction contractor would submit a mobilization/demobilization work plan to the Project Partners prior to starting the work. The second phase of construction would occur from July 1 to October 31. This would include constructing the bank protection improvements, installation of the IWM, and installation of the temporary erosion control seeding of disturbed areas. Any alterations to the levee prism should be completed prior to November 1, and all in-water work should be completed by October 31. The greening contract (also known as the tree and vegetation planting contract) would occur following the conclusion of construction each year, starting in November and continuing into the spring of the following year.

### *Demobilization and Cleanup*

Demobilization and cleanup would occur in October and November of each year after construction is complete. The staging areas, landside levee slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

### **3.5.3.1.2 Operations and Maintenance**

After the bank protection improvements have been completed, general O&M activities would be conducted by the LMA and would be similar to existing activities. Additional O&M activities would be required for on-site mitigation plantings in accordance with the BOs and are described below.

A vegetation management plan would be developed in coordination with USFWS and NMFS to ensure that native riparian plantings installed within the planting benches are protected, managed, monitored, and maintained for 8 years, not to exceed 10 years following installation and ensure that they are on an ecologically sustainable trajectory, as required by the BOs. This vegetation management plan would be consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan developed for the ARCF GRR FEIS/EIR. The vegetation management plan would identify activities and establish objectives, priorities, and tasks for monitoring, managing, maintaining, and reporting on the established habitats.

Maintenance activities would start immediately following completion of the initial planting. General clean-up maintenance would be performed throughout the year though some activities would vary according to weather and season. Examples of general clean-up and site maintenance include picking up trash, repairing damage due to vandalism, and removing used planting accessories (bamboo stakes, ties, browse guards, etc.) Replacement of dead and dying plants would occur at the conclusion of each establishment year. For watering maintenance, crews would connect the water pump to the irrigation system for each irrigation cycle pursuant to the schedule described in the vegetation management plan. The irrigation system may be partially or entirely removed temporarily when required to accommodate seasonal high-water flows.

Invasive plant species incursions would begin during initial establishment efforts to prevent wide-scale establishment and minimize the use of control efforts such as pesticide usage. The techniques available for controlling terrestrial and aquatic species involve hand or mechanical removal and chemical treatment. Only chemicals approved for use in California in or around aquatic habitats may be used. Crews would weed within the watering basins of the plantings and within an 18-inch radius of each woody and grass associated plant. Invasive species management would prevent nonnative herbaceous growth and soil moisture competition. USACE is required to prevent invasive plant species from spreading and management of existing populations is required by the USACE Memo for U.S. Army Corps of Engineers on Invasive Species Policy dated 21 Feb 2023.

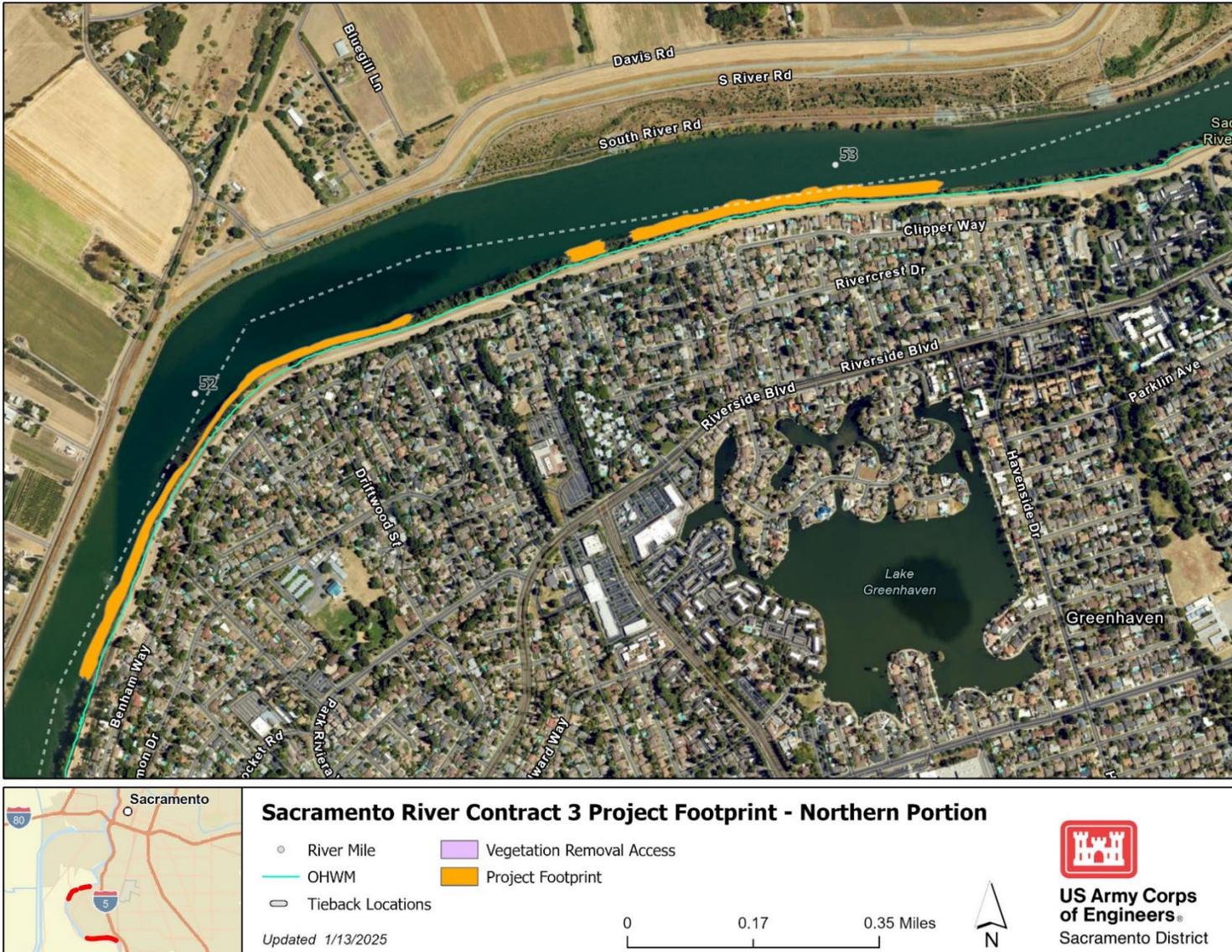
### **3.5.3.2 Proposed Action and Design Refinements for the Sacramento River Erosion Contract 3**

Table 3.5.2-2 identifies which components of the Proposed Action for the Sacramento River Erosion Contract 3 are already authorized by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

**Table 3.5.3-2. No Action Alternative and Design Refinement Comparison for Sacramento River Erosion Contract 3**

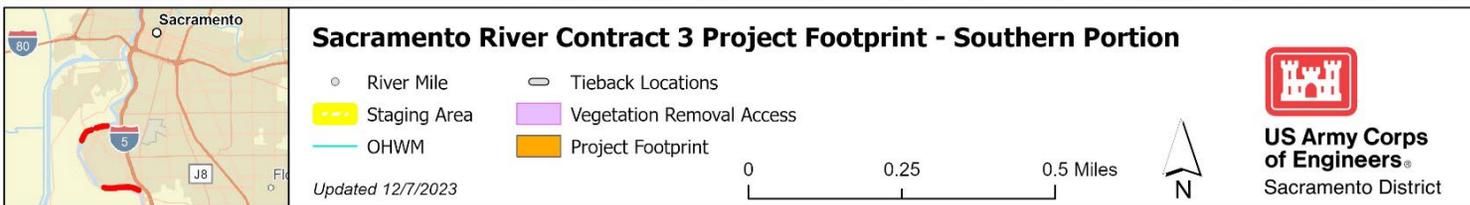
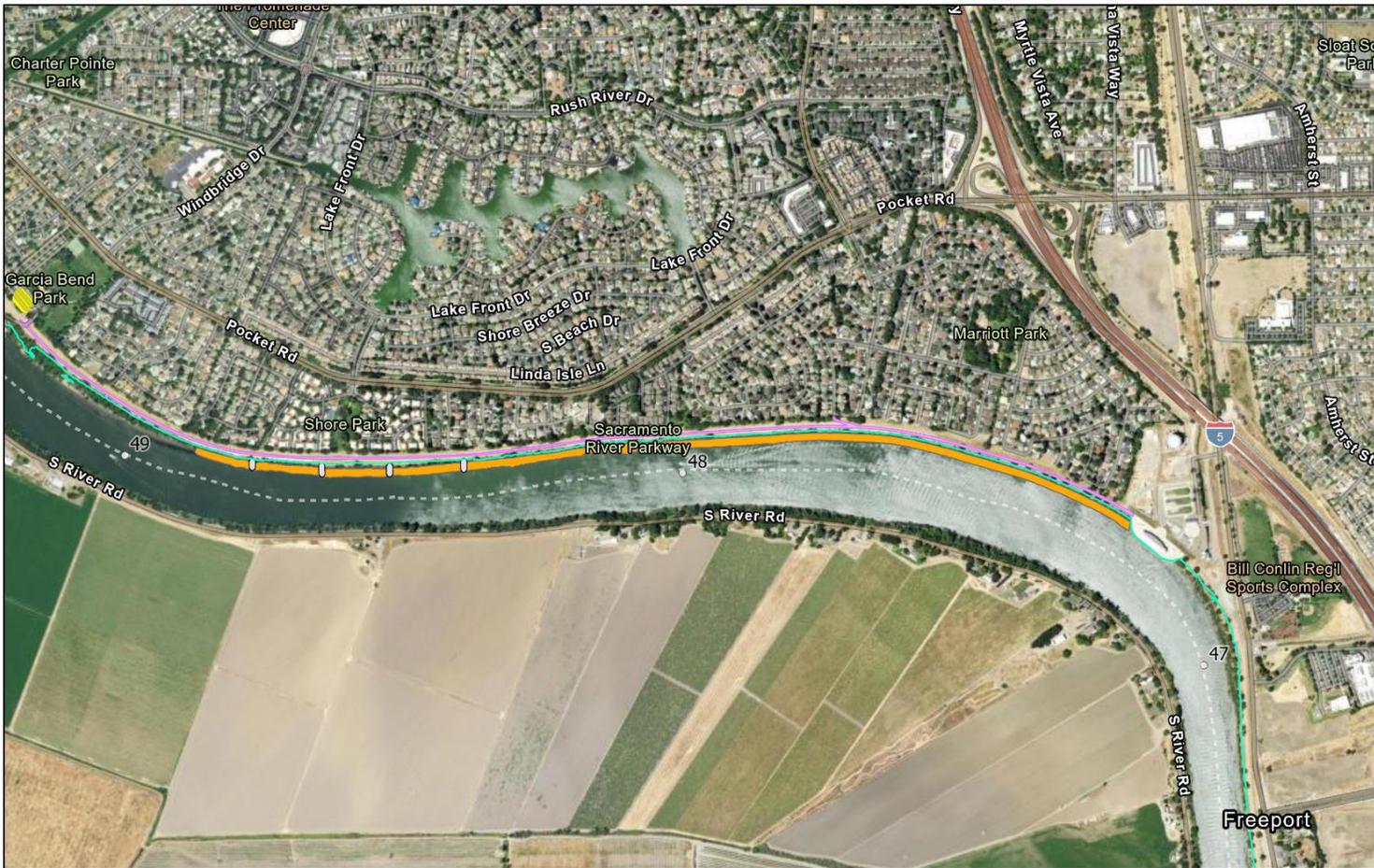
Project Component	NEPA Status
Erosion Protection Location	No Action
Erosion Protection Method	Design Refinements
Staging Areas	Design Refinements
Haul Routes	No Action
Vegetation Removal	Design Refinements
Onsite Mitigation Sites on the Sacramento River	No Action

Source: USACE 2022a, Adapted by GEI



Source: USACE 2023

**Figure 3.5.3-1. Sacramento River Erosion Contract 3 Project Footprint – Northern Portion**



Source: USACE 2023

**Figure 3.5.3-2. Sacramento River Erosion Contract 3 Project Footprint – Southern Portion**

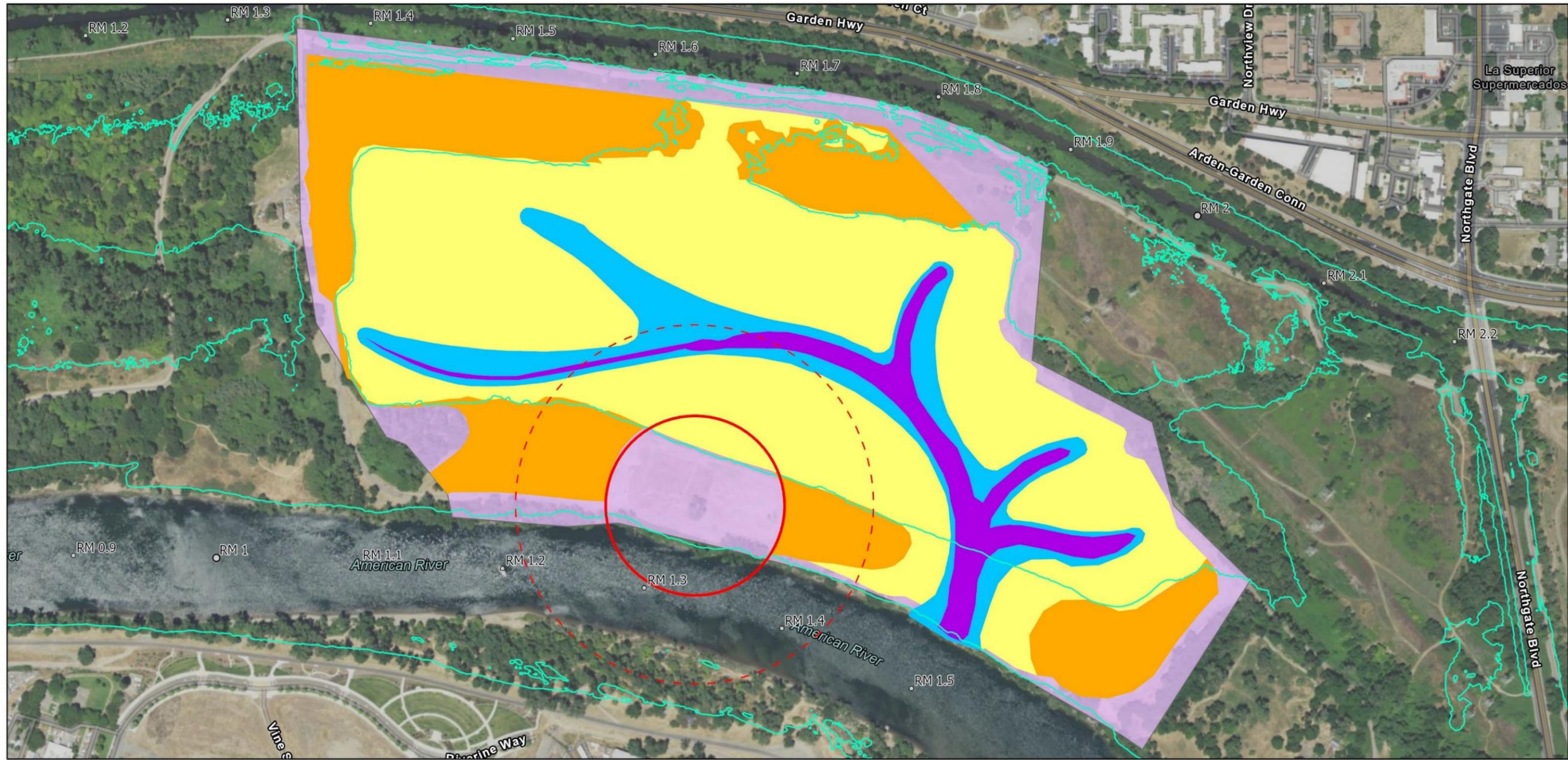
### 3.5.4 American River Mitigation Site (Program Level)

The ARMS project component would be constructed at the approximately 120-acre site purchased for mitigation between RM 1.0 and 1.6 in the American River Parkway. Analysis of the ARMS is presented at a conceptual (program) level since the USACE design process is in such an early phase. The 2016 ARCF GRR FEIS/EIR did not analyze the use of the ARMS for mitigation; therefore, the ARMS is a proposed new project component. Table 3.5.5-1 presents the mitigation needs for all the ARCF 2016 Project contracts, to be met at the ARMS. Figure 3.5.5-1 illustrates the proposed conceptual mitigation design for the ARMS.

**Table 3.5.4-1. ARMS Needs**

Type of Mitigation	Acres Needed
Salmon/Steelhead	66
Riparian/Yellow-billed cuckoo	72
Valley elderberry longhorn beetle	23
Seasonal/Forested wetland	6.6

Source: Compiled by USACE 2023



**American River Mitigation Site Project Footprint**

- RM tenths
- OHWM
- Highflow Channel (Riverine)
- Low Riparian Connected Floodplain
- Lowflow Channel (Riverine)
- Upland
- Construction Access
- Work Restriction Area
- Seasonal Work Restriction Area

Updated 12/7/2023

0 300 600 Feet

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Sacramento District

Source: USACE 2023

**Figure 3.5.4-1. Proposed American River Mitigation Site**

### **3.5.4.1 Features of the Proposed Action and Construction Details**

The ARMS would be constructed to provide mitigation habitat for Federally listed species, as identified in the USFWS and NMFS BOs. The ARMS would also be mitigation for regional habitats that are defined in the ARCF Fish and Wildlife Coordination Act (FWCA) Report (USFWS 2015) such as riparian forest and riparian scrub-shrub, elderberry savannah and seasonal floodplain wetlands. Federally listed species habitat may include western yellow-billed cuckoo, VELB, and Chinook salmon and steelhead. The habitat for the listed species overlaps with the riparian forest and riparian scrub-shrub habitats defined in the FWCA report. ARMS would involve construction of seasonally inundated riparian habitat for Chinook salmon and steelhead by breaching the existing riverbank and allowing surface water to flow through constructed channels. Channels would be designed to remain inundated year-round with the riparian habitat inundated during higher flow to create salmon habitat. The riparian vegetation would provide resting, foraging, roosting, and nesting habitat for numerous avian species, as well as the local terrestrial fauna. The visual goal is for the habitat mitigation to blend in seamlessly with the surrounding riparian forest, although it is estimated that 8 to 10 years will be required for the vegetation to mature. Additional soil exploration and laboratory testing would need to be completed, as well as biological, cultural, and environmental resource surveys as part of the project level analysis and planning.

Construction on the property would include tree and stump removal and may include elderberry transplanting based on USFWS guidance protocol (USWF 2017), followed by grubbing. The existing man-made pond would be drained and graded, and pond bottom sediments would be capped. The site would be connected to the river by removing the existing bank, creating multi-elevational flow channels, and smoothing out elevations in between. Additional grading would be necessary to modify elevations across the site elsewhere, stabilize banks, and create access pathways. Bank protection measures may be required to protect the channels from eroding and being damaged during high-flow events. The design would incorporate IWM. Revegetation would include a palette of native trees, grasses, and shrubs.

### **Construction Schedule, Materials, and Equipment**

The ARMS would be constructed over three construction seasons (generally between April 1 and October 31), in 2026, 2027 and 2028. Work would typically occur between 7 am and 6 pm Monday through Saturday. Since there is only one residence near the project site, the Camp Pollock Caretaker, with proper coordination this residence vacant, night work could be considered. In-water work in the American River, not including areas of the man-made pond behind the river embankment, would be permitted between July 1 and October 31; however, depending on certain conditions, NMFS may allow in-water work to start June 1. Work around elderberry shrubs would be permitted between November 1 and February 15. A USFWS bald eagle disturbance permit would be required and would include monitoring and other best management practices during construction to minimize effects on eagles during the nesting season (late December – early July). The USFWS bald eagle disturbance permit is not anticipated to pose any restrictions on the types and durations of construction activities within 660-feet of the nest, unless monitoring indicates specific construction activities are disturbing the active nest and posing a risk to the reproductive success of the nesting pair, in which case those activities would need to be modified to minimize disturbance or delayed until the nest is

determined to be inactive. Site preparation could begin as early as 2026 and construction would begin the following year. Most channel and riparian features would be completed before the right bank is breached to minimize any turbidity impacts to the river. Filling and grading within the existing man-made pond would include partial or complete dewatering to control water during fill operations and may require use of temporary cofferdams or inflatable bladders. A turbidity curtain and/or temporary sheet piles would be installed prior to making the hydrologic connection with the river. Revegetation would occur in the spring, after construction is complete as early as 2027. A vegetation management plan and long-term management plan will be developed for the site. Demobilization and cleanup would occur in October and November of each year after construction. The staging areas, landside levee slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

Construction materials are shown in Table 3.5.5-2. To the maximum extent possible, material removed from the bank and channels would be used to modify elevations elsewhere on the site to create additional upland riparian or VELB habitat. The exact volume of cut and fill material required to construct the ARMS has not yet been determined. This material would be obtained from other portions of the ARCF 2016 Project or from commercial sources within 50 miles of the site. Table 3.5.5-2 also lists the equipment, number of truck loads and durations of hauling in the construction materials. All heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. All haul trucks would have 2014 or newer engines and would meet CARB's lowest option low-NOx standard. Diesel equipment will be required to use renewable diesel fuel.

**Table 3.5.4-2. Preliminary Materials, Trips, and Equipment Required for ARMS**

Item	Quantity	Unit	# Loads	# Trucks	# Truck Trips /Day	# Days	Construction Equipment/Day	# Days Equipment Operations	Notes
Mobilization/ Demobilization	1	JOB	50	3	2	8			
Traffic Control	1	JOB	10	2	2	3			
Stormwater Pollution Prevention Plan	1	JOB	20	2	2	5			
Dewatering/ Fish Salvage	1	JOB							
Contractor Surveying	1	JOB							
Clearing and Grubbing	40	ACRE	100	2	4	13	D4 Dozer + 902 Front end loaders + water truck	13	Trucking assumes disposal at local landfill or nearby green waste recycle operation
Demolition	1	JOB	40	3	3	4	320 Hydraulic Excavator + D4 Dozer + water truck	7	Trucking assumes disposal at local landfill
Excavation	146,000	CUBIC YARD	4	1	1	4	Excavate and stripping: 320 Hydraulic Excavator + D4 Dozer + water truck	100	
Imported Fill	857,000	CUBIC YARD	69,583	25	8	348	Onsite Fill: D4 Dozer + CP44B Vibratory Compactor + 0.25 CAT 140 Grader + water truck Borrow Site: 320 Hydraulic Excavator + D4 Dozer + water truck	348	Assumes a placement/production rate of approx. 2,500 cubic yard /day
Planting Benches (Material Processing and Placement)	34,560	CUBIC YARD					320 Hydraulic Excavator + D4 Dozer + water truck	38	
In-stream Woody Material	200	EACH	67	3	2	11	320 Hydraulic Excavator + 902 Front end loaders + water truck	20	
Rip Rap	100	CUBIC YARD	10	2	4	1	321 Hydraulic Excavator	3	

Item	Quantity	Unit	# Loads	# Trucks	# Truck Trips /Day	# Days	Construction Equipment/Day	# Days Equipment Operations	Notes
Jute Netting	40	ACRE	10	2	2	3			
Seeding	40	ACRE	4	2	2	1			
Planting	60	ACRE	12	2	2	3			
Aggregate Base	2100	TON	84	4	4	5	Motor Grader + water truck	5	
Plant Protection (fencing/cages placement and removal)	1	JOB	2	1	2	1			
		Subtotal	72,996						
		30% Contingency	21,899						
		<b>TOTAL</b>	<b>94,895</b>						

### **3.5.4.1.1 Haul Routes, Access Routes, and Staging Areas**

The ARMS would be accessed either from Garden Highway by Natomas Park Drive going through Discovery Park, or from Northgate Boulevard via the Riverdale Mobile Home Park access and existing O&M roads for overhead power lines within the site. Trucks would access the regional road network via Northgate Boulevard and/or Garden Highway, SR-160, I-5, or I-80. Access to the site is controlled by a locking gate on Natomas Park Drive, but there are no existing access controls from Northgate Boulevard or Camp Pollock. Some road work such as tree trimming, or minor road repairs may be needed for access. Staging for site construction would occur within the ARMS boundary, or within the local vicinity. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas. Staging areas on the ARMS site would be subject to strict containment and spill prevention best management practices (BMPs) to comply with SWPPP requirements. Once work is complete, staging areas would be returned to their initial conditions or planted with native vegetation to provide additional habitat.

### ***Operations and Maintenance***

A habitat management plan would be developed in coordination with USFWS, NMFS, and NFS during design development, to guide how the native vegetation plantings are managed, monitored, and maintained. This document would be written in accordance with Engineering Regulation 1105-2-100 Appendix C Environmental Evaluation and Compliance and be completed before the project is turned over to the NFS. The site would require temporary irrigation and beaver fencing to ensure successful vegetation growth and habitat success during the 8- to 10-year monitoring period. Maintenance and management activities could include, but are not limited to, plant replacement, weeding, invasive species management, irrigation, and trash removal. USACE is required to prevent invasive plant species from spreading, and management of existing populations is required by USACE Memo for US Army Corps of Engineers on Invasive Species Policy dated 21 Feb 2023. Performance and success criteria have not yet been defined and would be included in a Habitat Enhancement and Restoration Plan that is drafted in coordination with NFS. Once the site is determined to have met establishment period success criteria, the long-term maintenance would transfer to the NFS.

### **3.5.4.2 Proposed Action and Design Refinements for the American River Mitigation Site**

Table identifies which components of the Proposed Action for the ARMS are already analyzed by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

**Table 3.5.4-3. No Action Alternative and Design Refinement Comparison for American River Mitigation Site Improvements**

Project Component	NEPA Status
Mitigation Location	Design Refinements
Construction Methods	Design Refinements
Staging Areas	Design Refinements
Haul Routes	Design Refinements
Vegetation Removal	Design Refinements

Source: USACE 2022a, Adapted by GEI

### 3.5.5 Sacramento River Mitigation Site (Program Level)

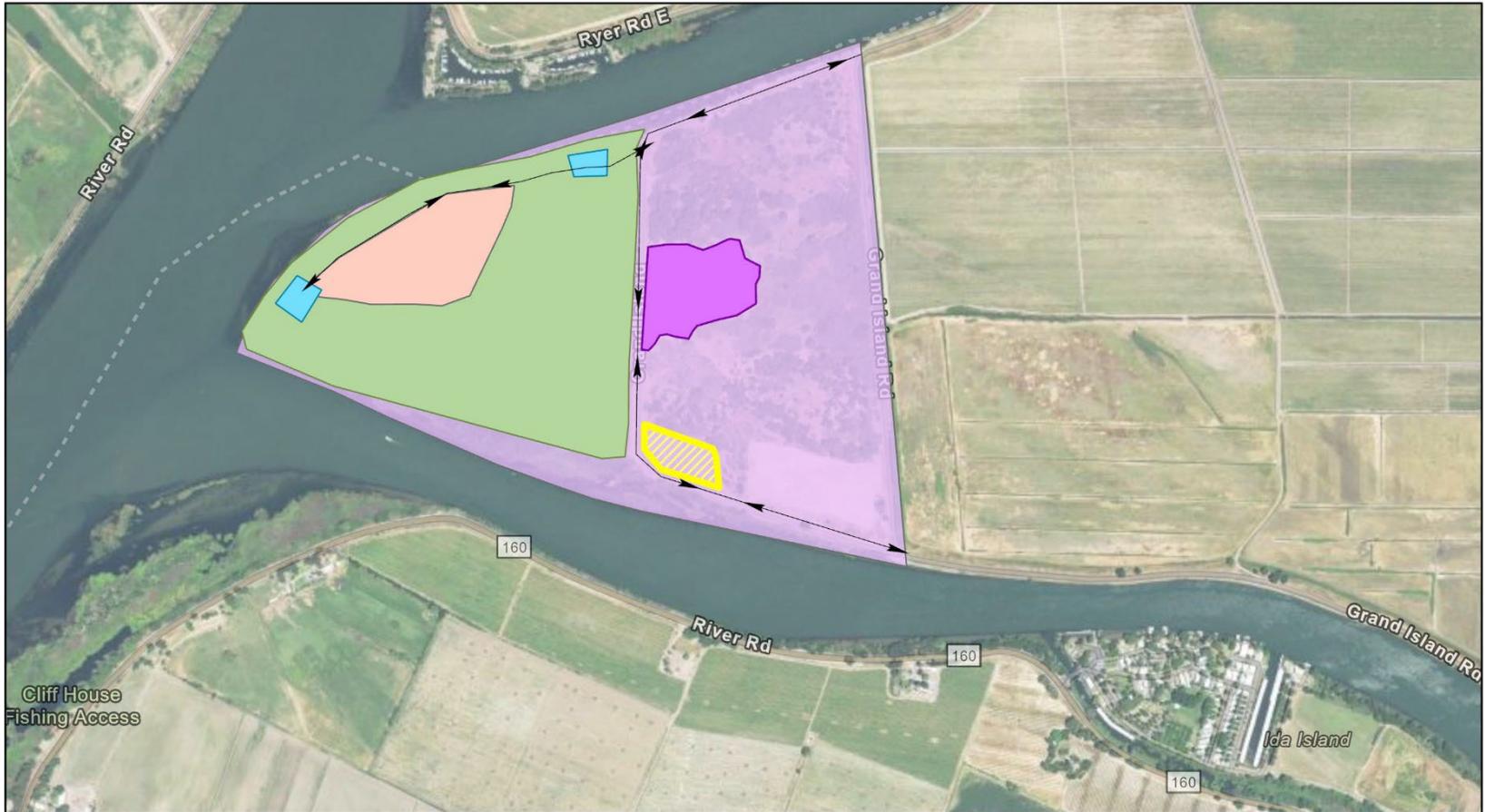
#### 3.5.5.1 Features of the Proposed Action and Construction Details

The SRMS component would be constructed on approximately 200-acres at Grand Island, located near Sacramento RM 15 and the confluence of Cache and Steamboat Sloughs. Analysis of the SRMS is presented at a program level because only conceptual designs are available for environmental analyses. The SRMS location, staging, and haul routes were not analyzed in the 2016 ARCF GRR FEIS/EIR. Table 3.5.6-1 presents the mitigation needs for all Sacramento River impacts resulting from all ARCF 2016 Project contracts, not only the Sacramento River Erosion Contract 3 that is discussed in this SEIS/SEIR, to be met at the SRMS. Figure 3.5.6-1 illustrates the proposed mitigation locations.

**Table 3.5.5-1. SRM1 Sacramento River Mitigation Needs**

Type of Mitigation	Acres Needed
Salmon/Steelhead/Green Sturgeon	45
Delta Smelt	59
Riparian/Yellow-billed Cuckoo	36
Valley Elderberry Longhorn Beetle	0.0

Source: Compiled by USACE 2023 – Magpie Mitigation is included in Sac River Numbers



**Sacramento River Mitigation Site Footprint**

- ← Access Route
- Potential Breach Zone
- Potential Reconditioned Dredge Cell
- Potential Fish and Lower Riparian Habitat Improvement Areas
- Potential staging
- VELB and upper Riparian Zone
- Construction Access

Updated 12/7/2023



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Sacramento District

Source: USACE 2023

**Figure 3.5.5-1. Sacramento River Mitigation Site Project Footprint**

Habitat mitigation improvements at SRMS would include breaching the existing perimeter berms, grading to create channels, stabilizing bank protection, and vegetation planting. Breaching the berms would allow surface water to flow through constructed channels for tidal wetland habitat. Channels would be designed for tidal circulation to improve food production in the wetland. The design would incorporate instream woody material where appropriate. Revegetation would include a palette of native trees, shrubs, grasses, and aquatic vegetation. Aquatic vegetation should include native submerged and emergent wetland plants. The wetland habitat would provide sheltered slow-moving water, food and cover for Delta Smelt, juvenile Salmon and Steelhead. Appropriate aquatic invertebrate plankton may be transplanted into the wetland to support the food web for Delta Smelt. The wetland design will incorporate habitat features that reduce the presence of predators and do not create fish traps during low water circumstances. The riparian vegetation would provide resting, foraging, roosting, and nesting habitat for numerous avian species, as well as the local terrestrial fauna. The visual goal for the habitat mitigation is for the site to blend in seamlessly with the surrounding riparian forest, although it is anticipated 8 to 10 years would be required for the vegetation to mature. Additional soil exploration and laboratory testing would need to be completed as well as biological, cultural, and environmental resource surveys.

### **3.5.5.1.1 Construction Schedule, Materials, and Equipment**

The SRMS would be constructed over two construction seasons in 2026 and 2027, with revegetation to occur after site contouring is complete. Wetland vegetation would be planted and established for several months prior to breaching the berms to the adjacent water bodies. Work would typically occur between 7am and 6pm Monday through Saturday; however, work times may be extended, including potential night work, due to the site's remote location. A balanced cut-fill design for the wetland (excavation) and riparian habitat (fill for terracing) is an objective to minimize transport of fill, greenhouse gas production, and cost. The construction area is enclosed by a high berm, separating it from water in the adjacent sloughs.

Vegetation grubbing and tree removal may occur prior to May. In-water work for aquatic beneficial use features along the outside perimeter of the sites and opening the berms to connect the wetland habitat to the adjacent waterbodies would be permitted between July 1 and October 31. Work around elderberry shrubs and transplanting would be permitted between November 1 and February 15. Demobilization and cleanup would occur in October and November of each year after construction is complete. The staging areas, landside berm slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

Conservative estimates of the volumes of construction materials required to construct the SRMS are shown in Table 3.5.6-2 through Table 3.5.6-3. To the maximum extent possible, material removed from the berm and channels would be used to modify elevations elsewhere on the site to create additional upland riparian or VELB habitat. The exact volume of cut and fill material required to construct the SRMS would be refined as design progresses. The site could also contain materials that would likely not be suitable for reuse due to the presence of chemical

contamination and these materials, would likely need to be hauled offsite for proper disposal at a local class 1 landfill. Table 3.5.6-2 through Table 3.5.6-3 also list the equipment, number of truck loads, and duration of hauling the construction materials. All heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. All haul trucks would have 2014 or newer engines and would meet CARB's lowest option low-NOx standard. Diesel equipment will be required to use renewable diesel fuel.

**Table 3.5.5-2. SRM-1 Conceptual Sacramento River Mitigation Site Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	433	CY
Aggregate Base Course	390	CY
Channel Fill	7,280	CY
Seeding & Mulching	67,600	SF
In-stream Woody Material	145	EA
Live Willow Cuttings (collect pole cuttings within 50 miles)	3,400	EA

Notes: Cubic Yards (CY), Square Feet (SF), Each (EA)

**Table 3.5.5-3. SRM-1 Conceptual Sacramento River Mitigation Site Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/ Day/ Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	44	8	8	1	Tandem 10cy, ISX Diesel 365hp
Imported Fill		1		8	CS-323C Compactor
Wetland Channels		1		40	322B Excavator
Relocate Channel Fill		1		8	D4 Bulldozer
Relocate Channel Fill	728	12	8	8	Tandem 10cy, ISX Diesel 365hp
Relocate Channel Fill		1		1	902 Front End Loader
Stump Removal	541	19	6	5	Super Dump 20cy, ISX Diesel 485hp
Excavation to Dispose	10637	24	13	35	Tandem 10cy, ISX Diesel 365hp
Geotextile Fabric		1		1	Truck and Trailer (flatbed) Diesel 265hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mobilization/Demobilization	6	8	1	2	Tractor Trailer (flatbed) Diesel 430hp
In-stream Woody Material	8	3	1	3	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	7	3	1	3	Truck and Trailer (flatbed) Diesel 265hp

### 3.5.5.1.2 Haul Routes, Access Routes, and Staging Areas

The SRMS site access and haul routes would be via Grand Island Road and maintenance roads within the site. From Grand Island Road, trucks and workers would access the regional road network via SR-160, SR-4, I-5, I-80, I-580, and I-680. Access to the site is controlled by locked

gates at the turn off from Grand Island Road. Some work such as tree trimming, minor grading, paving, and adding aggregate may need to be done along the haul routes to allow access to the site.

The staging area within the SRMS boundary will encompass approximately 75,000 square feet, enclosed with fencing and equipped with security lighting. This area will serve multiple functions, including material stockpiling, housing construction offices and trailers, parking for construction workers, and equipment staging. Traffic may traverse these zones. The staging area will adhere to stringent containment and spill prevention best management practices (BMPs) to prevent Stormwater Pollution Prevention Plan (SWPPP) violations. Upon project completion, the staging area will be restored to their original condition or replanted with native vegetation to enhance habitat. The SRMS design utilizes on-site cut and fill operations to manage existing sand, rock, and soil materials, minimizing the need for significant material importation.

### *Operations and Maintenance*

A habitat management plan would be developed in coordination with USFWS, NMFS, and NFS to ensure that the native vegetation plantings are managed, monitored, maintained and protected in perpetuity. This document would be written in accordance with ER-1105-2-100. The site could require temporary irrigation and beaver fencing or caging to ensure success vegetation growth and habitat success during the 8- to 10-year monitoring period. Maintenance and management activities could include, but are not limited to, plant replacement, weeding, invasive species management, irrigation, trash removal, and repairs to erosion at the channel entrance. The Corps is required to prevent invasive plant species from spreading and management of existing populations is required by USACE Memo for US Army Corps of Engineers on Invasive Species Policy dated 21 Feb 2023. Long-term maintenance would transfer to the NFS after success criteria are met.

### **3.5.5.2 Proposed Action and Design Refinements for the Sacramento River Mitigation Site**

Table 3.5.6-4 identifies which components of the Proposed Action for the SRMS already authorized by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

**Table 3.5.5-4. No Action Alternative and Design Refinement Comparison for Sacramento River Mitigation**

Project Component	NEPA Status
Mitigation Location	Design Refinements
Construction Methods	Design Refinements
Staging Areas	Design Refinements
Haul Routes	Design Refinements
Vegetation Removal	Design Refinements

Source: USACE 2022a, Adapted by GEI

### **3.5.6 Piezometer Network (Program Level)**

A piezometer is used to measure underground water pressure and piezometers are extensively used to monitor groundwater levels and flow patterns. The purpose of installing a piezometer network is to provide an empirical data collection system to evaluate the performance of the ARCF 2016 Project and to provide real time data to water resource managers, levee maintenance agencies, and project engineers. The piezometer network would allow USACE to evaluate the long-term performance of the flood control features throughout the project following construction of the proposed levee improvements. All sites receiving piezometers were included in the ARCF GRR FEIS/EIR; however, the installation of a piezometer network was not analyzed in the original document and is considered a design refinement.

#### **3.5.6.1 Features of the Proposed Action and Construction Details**

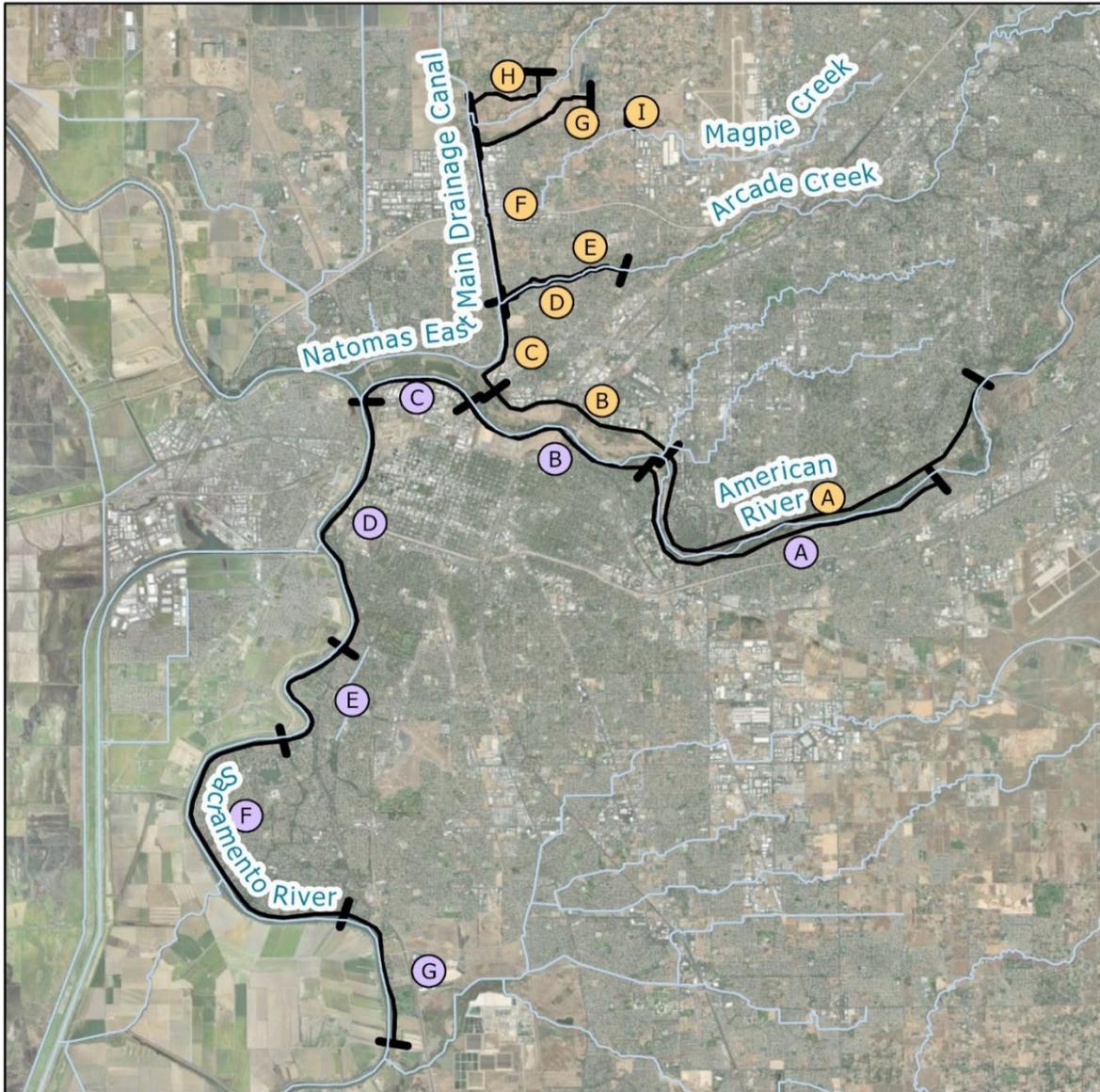
Piezometers would be installed permanently along the existing levees within the authorized footprint of the ARCF GRR FEIS/EIR. These installations could occur along the Sacramento River left bank, Lower American River left and right banks, Magpie Creek left bank, and Sacramento Bypass right bank that are all project areas of the ARCF 2016 Project. The distribution of piezometers will be based on the size of the project area and the local hydrologic conditions. It is anticipated that most, but not all piezometers would be installed within the spatial limits of the construction footprint. All piezometer installation locations would require pre-construction surveys for biological and cultural resources.

Approximately 100 piezometers would be installed at various locations along the levee segments listed above with piezometers on the levee crown and/or near the landside levee toe. Piezometers would be distributed between all ARCF 2016 Project reaches (see Figure 3.5.7-1 for reach locations) and some areas may have higher concentrations of piezometers than other areas. On average, between 3 and 15 piezometers would be installed at each project reach (see Figure 3.5.7-1 for reach locations). There is an existing network of previously installed piezometers within the authorized footprint. Some existing piezometers may require abandoning and/or full replacement.

Piezometer type and depth of installation would vary upon location and monitoring objectives. A standard piezometer (vibrating wire) installation diagram is shown in Figure 3.5.7-2. Piezometers are recommended to be installed at the top of the aquifer, below the base of the blanket layer, to monitor the following conditions:

- Effectiveness of relief wells
- Effectiveness of deep cutoff walls
- Performance monitoring at transitions between deep and shallow cutoff walls
- Aid in verifying the calibration of the Bank Stability and Toe Erosion Model used in erosion assessment for the American River
- Verification of performance in segments where no remediation was installed
- Monitoring near in-ground swimming pools close to the landside levee toe

Following installation, each piezometer would be equipped with telemetry devices to provide real-time and remote data acquisition, which saves time and money by avoiding the need to take manual readings of each piezometer in the field.



**ARCF 2016 Project Reaches**

— Waterways

**Reach Letters**

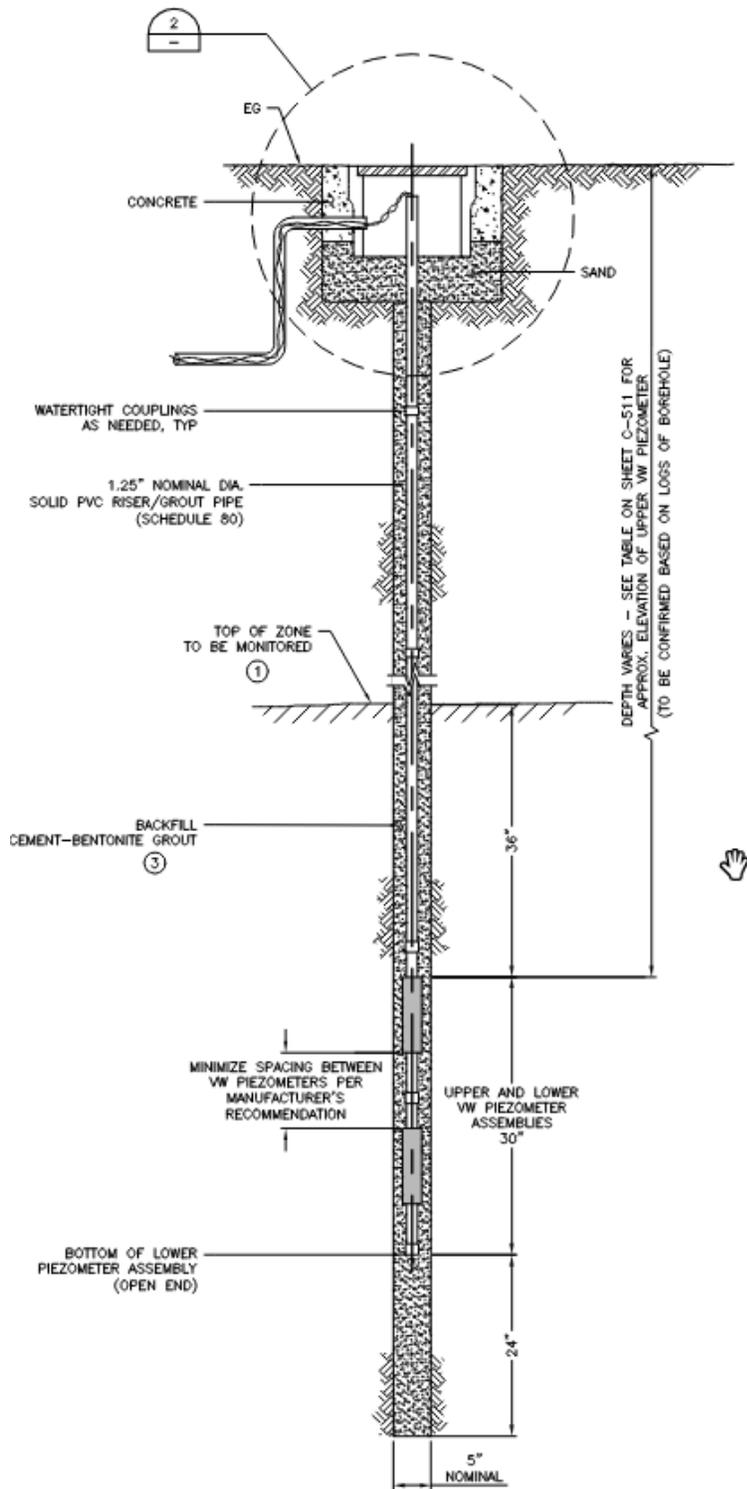
- American River North
- American River South

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Sacramento District

0 2 4 Miles

Updated 9/8/2023

**Figure 3.5.6-1. ARCF 2016 Project Reaches**



TYPICAL VIBRATING WIRE PIEZOMETER SECTION  
 NTS

Figure 3.5.6-2. Typical Vibrating Wire Piezometer Section

### 3.5.6.2 Construction Schedule, Materials, and Equipment

The project would be completed as construction contracts are completed over the next four years. Construction at each contract site would be anticipated to take approximately 90 days, but the work may be spread out between multiple construction seasons. It is anticipated that between two and three piezometers would be installed per day depending upon soil conditions and depth to aquifer. The equipment for the installations would consist of a drill rig (sonic or hollow stem auger) and a support vehicle to provide well installation supplies. The piezometers would be installed in 2-inch diameter well casings. The range of boring size is expected to be between 6 to 12 inches in diameter, installed to a depth between 40 – 100 feet. All drill cuttings and purge water would be containerized and disposed offsite. Drill rig access would not require tree or vegetation removal but may require some minor regrading on the levee prism for access and installation of telemetry devices with anti-theft and security measures.

Standard utility clearance would be conducted as part of the site evaluation and borehole location marking. It is anticipated that piezometers would be connected to the electric infrastructure or be solar powered. Solar panels would be small, similar in size to those associated with call boxes along highways. There are no additional onsite habitat impacts anticipated by the installation of these piezometers because most locations would be within the construction footprint or included in the preconstruction survey. There would be no well installations below the ordinary high-water mark (OHWM) as they would be located on the crown of the levee, or landward of the levee.

Construction materials are shown in Table 3.5.7-1 through Table 3.5.7-4. Soil from borings would be containerized and hauled off-site to either an existing stockpile location or to a landfill within 20 miles of the project site.

**Table 3.5.6-1. Piezometer Network Installation – Piezometer Quantities**

Site Feature	QTY	Unit
Telemeter monitored Piezometers	100	wells
Environmental Contingency	N/A	

**Table 3.5.6-2. Piezometer Network Installation – Quantity Summary**

Material	QTY	Unit
Drill Cutting Disposal	200	cubic yard
Aggregate Base Course	100	cubic yard
Asphalt or Concrete Pavement	100	cubic yard
Sand for Well Pack	400	cubic yard
Bentonite	100	cubic yard

**Table 3.5.6-3. Piezometer Network Installation – Quantity Summary Breakdown**

Material	# Loads	#Trucks
Drill Cutting Dispose	20	1
Aggregate Base Course	15	1
Asphalt or Concrete Pavement	25	1
Sand for Well Pack	50	1

**Table 3.5.6-4. Piezometer Network Installation – Materials and Equipment Summary**

Material	# Loads	# Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Soil Cutting	20	1	1	50	Tandem 10 cubic yard, ISX Diesel 365hp
Asphalt or Concrete Pavement	25	1	1	25	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course	15	1	1	15	Super Dump 20 cubic yard, ISX Diesel 485hp
Sand for Well Pack	50	1	1	50	Tandem 10 cubic yard, ISX Diesel 365hp
Drill Rig	50	1	1	50	Hollow stem Auger Drill Rig Diesel 485hp

### 3.5.6.2.1 Haul Routes and Staging Areas

Haul routes described in the previous sections for each of the project components would be utilized to access the piezometer installation locations. No temporary roads or ramps would be required to install the piezometers. The associated material delivery would occur with the start of each drilling operation.

Staging areas may be needed to store drilling equipment, such as drill rigs and support vehicles or trailers, safely overnight. Following piezometer installation, the resulting drill cuttings and excess soils would be stored in 55-gallon drums for proper disposal in compliance with any applicable regulations governing solid and hazardous waste. Staging areas may be fenced and have additional security features. These staging areas would be surveyed for sensitive biological and cultural resources prior to use.

Many staging areas already described and analyzed in this SEIS/SEIR (described in Sections 2.5.1, 2.5.2, 2.5.3, and 2.5.4) would be utilized for piezometer installation. Staging areas within the ARCF GRR FEIS/EIR footprint that were analyzed in Supplemental NEPA and CEQA documents and utilized in previous construction contracts may also be used. Only 0.3 acre of land is needed for staging at each location, so it is not expected that the entire areas described for previous contracts would be used. In addition, there would be no full park closures associated with staging for piezometer work. These areas may include but are not limited to:

- Areas in Sutter’s Landing Park used for staging from American River Erosion Contract 3A.
- The land between Business I-80 Bridge and the UPRR bridge from American River Erosion Contract 3A.
- The staging area near Paradise Bend used in American River Erosion Contract 1.
- The six sites in the American River Parkway between H Street and Howe Avenue used for American River Erosion Contract 2.
- University Park used for American River Erosion Contract 2 and 3B North.
- The site in the American River Parkway just south of University Park used for American River Erosion Contract 2 and 3B North.

- A vacant lot at Jibboom Street and I Street used for SREL Contract 4.
- A vacant lot just north of Broadway used for SREL Contract 2.
- A vacant lot near Front Street south of R Street used for SREL Contract 2 and Reach D Contract 1.
- A vacant lot on the north side of Broadway at Marina View Drive used for SREL Contract 2 and SREL Contract 4.
- Miller Park used for SREL Contract 1.
- Miller Park Bike Trail used for SREL Contract 1.
- Westin Hotel Parking lot used for SREL Contract 4.
- The area above the OHWM at Chicory Bend used for SREL Contract 1 and SREL Contract 4.
- Ellsworth C Zacharias Park used for SREL Contract 2 and SREL Contract 3.
- Waterside levee toe at the south end of Little Pocket used for SREL Contract 2.
- The landside levee along North Point Way used for SREL Contract 3.
- The landside of levee near Benham Way used for SREL Contract 3.
- The waterside corridor at Arabella Way used for SREL Contract 3.
- An open area between Pocket Road and River Isle Way used for SREL Contract 3.
- The waterside corridor between Marlton Court and Way used for SREL Contract 3.
- Sump 132 used for SREL Contract 1, Contract 3, and Contract 4.
- Garcia Bend Park used for SREL Contract 1, Contract 3, and Contract 4.
- The Freeport Intake Facility used for SREL Contract 1.
- A lot adjacent to Freeport Boulevard used for SREL Contract 4.
- A vacant lot in the southeast corner of the Bill Conlin Sports Complex used for SREL Contract 4.
- A vacant lot at the southeast intersection of Freeport Boulevard and Consumes River Boulevard.
- A highway shoulder on the east bank of Freeport Bridge.
- An abandoned agricultural field adjacent to North Beach Lake Levee at River Road.

Additional staging areas may be needed and would be located within the project footprint and be 0.3 acres or less. A qualified biologist and archeologist would survey new staging areas for

sensitive resources prior to use. The biologist would recommend placing staging outside of areas of dense vegetation to limit vegetation trimming and removal to the greatest extent practicable. If vegetation removal is required, biological monitoring would be required during bird-nesting season of if there were special-status species in the vicinity. Long-term staging at recreational areas would be avoided to the greatest extent practicable.

### 3.5.6.2.2 Operations and Maintenance

Once construction is complete and the performance standards have been met, the NFS and local maintaining agencies (LMAs) would be responsible for the O&M of the piezometer network. General maintenance is anticipated to include (at minimum) replacing locks, repainting covers, replacing damaged covers, adding concrete to stabilize or repair infrastructure, lubricating locks, checking flow quantities, checking piezometric levels, inspecting for water levels, inspecting for sand/material build up, inspecting parts to ensure they are functioning correctly, repairing broken parts, repairing broken bollards, and replacing broken bollards. The piezometers would be left in place for the life of the project, and it is anticipated that the piezometers would be added to the California Data Exchange Center, so that USACE, the NFS and the public can monitor the data.

### 3.5.6.3 Proposed Action and Design Refinements for the Piezometer Network

Table 3.5.7-5 identifies which components of the Proposed Action for the Piezometer Network that are already authorized by the ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

**Table 3.5.6-5. No Action Alternative and Design Refinement Comparison for the Piezometer Network Installation**

Project Component	NEPA Status
Piezometer Network Location	No Action and Design Refinements
Piezometer Network Installation Method	Design Refinements
Staging Areas	No Action and Design Refinements
Haul Routes	No Action and Design Refinements

Source: USACE 2022a, Adapted by GEI

## 3.6 Alternative 3: Alternatives for American River Erosion Contract 4A

The following alternatives would change American River Erosion Contract 4A. All other components of the Proposed Action (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network) would remain the same.

### 3.6.1 Alternative 3a: Landside Berm to Avoid Bike Trail Reroute

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#### *American River Erosion Contract 4A*

Alternative 3a would be the same as the Proposed Action, but instead of a waterside berm, a landside berm would be built between the levee and the State Route 160 bridge piers (Figure 3.5.3-4) to avoid recreation impacts. Unlike the Proposed Action, this work would avoid both permanent and temporary re-routing of the bike trail. Since Alternative 3a is smaller than the Proposed Action, it is anticipated that the material and equipment needed for this work would be similar or slightly less than the Proposed Action. An access road off Del Paso Boulevard near Alpha Brothers Towing would need to be improved and slightly raised for access to the construction area. Alternative 3a would require real estate acquisition of UPRR property. Alternative 3a would also require an encroachment permit from Caltrans to construct the berm around the State Route 160 bridge piers. Additional work not accounted for in this SEIS/SEIR could be required by Caltrans before they approve an encroachment permit for Alternative 3a.

**Table 3.6.1-1. American River Erosion Contract 4A Alternative 3a Berm Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	729	cubic yard
Aggregate Base Course	390	cubic yard
Imported Fill	4,680	cubic yard
Seeding & Mulching	23,140	square feet

**Table 3.6.1-2. American River Erosion Contract 4A Alternative 3a Berm Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	73	12	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		1	CS-323C Compactor
Aggregate Base Course		1		1	D4 Bulldozer
Aggregate Base Course		1		1	322B Excavator
Aggregate Base Course	39	8	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Imported Fill		1		8	CS-323C Compactor
Imported Fill		1		8	D4 Bulldozer
Imported Fill	468	8	8	8	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel. 265hp
Mobilization/Demobilization	6	4	1	2	Tractor Trailer (flatbed) Diesel 430hp

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***American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation, Piezometer Network***

All other components of the Proposed Action would remain unchanged after selection of Alternative 3a.

### 3.6.2 Alternative 3b: Permanent Bike Trail Reroute

#### *American River Erosion Contract 4A*

Alternative 3b would be similar to the Proposed Action but would use a different permanent bike trail reroute. Instead of going under the railroad and reconnecting to the bike trail near Del Paso Boulevard, the bike trail would head north following the railroad and reconnect to the bike trail just past the berm (Figure 3.5.3-4). The route would be slightly longer than the Proposed Action, approximately 0.1 miles. Installing this route would require vegetation trimming, vegetation clearing, regrading, raising the existing road, and paving. Drainage features such as culverts of precast arches may need to be installed. There would be more vegetation trimming and vegetation clearing than the Proposed Action since a part of the bike trail reroute (the portion that heads north and follows the railroad) associated with Alternative 3b does not follow an existing trail.

**Table 3.6.2-1. American River Erosion Contract 4A Alternative 3b Bike Reroute Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	4,066	cubic yard
Aggregate Base Course	5,456	cubic yard
Hot Mix Asphalt (Type A)	1,231	cubic yard
Imported Fill	6,845	cubic yard
Seeding & Mulching	328,857	square fee"
6" two-component paint traffic stripe	10,979	LF

**Table 3.6.2-2. American River Erosion Contract 4A Alternative 3b Bike Reroute Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Clearing & Grubbing		2		2	D4 Bulldozer
Clearing & Grubbing		1		2	902 Front End Loader
Clearing & Grubbing	204	12	8	3	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		3	CS-323C Compactor
Aggregate Base Course		1		3	140H Grader 185 HP
Aggregate Base Course		1		3	D4 Bulldozer
Aggregate Base Course	546	24	8	3	Tandem 10 cubic yard, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	123	16	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Imported Fill		1		4	D4 Bulldozer
Imported Fill		1		4	CS-323C Compactor
Imported Fill	684	24	8	4	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		2		1	Truck and Trailer (flatbed) Diesel 265h"

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
6" two-component paint traffic stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mob/Demob	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

***American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation***

All other components of the Proposed Action would remain unchanged after selection of Alternative 3b.

### 3.6.3 Alternative 3c: Bike Trail Reroute and Bridge

***American River Erosion Contract 4A***

Alternative 3c would be similar to the Proposed Action but would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm (Figure 3.5.3-4). Compared to the Proposed Action and other Alternatives, the route would be similar to the current bike trail route, only the alignment would be adjusted to go around the berm. A larger area of the wetland would need to be filled for the new alignment. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving and possible construction of a bridge. This alternative would require temporary closure of the bike trail and may require temporary detours to avoid significant impacts to recreation. These temporary detours may need to occur in the floodplain and could require temporary construction of the paths discussed for Alternatives 3b and 3d. Consequently, the same amount of vegetation clearing, vegetation trimming, regrading, and paving associated with Alternatives 3b and 3d could be needed for Alternative 3c as well.

**Table 3.6.3-1. American River Erosion Contract 4A Alternative 3c Bike Reroute Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	618	CY
Aggregate Base Course	585	CY
Hot Mix Asphalt (Type A)	260	CY
Seeding & Mulching	33,378	SF
Imported Fill	6,648	CY
Structural Steel Pipe Arch' (1"-6"X "'-8")	1	EA
6" two-component paint traffic stripe	2,282	LF

Notes: Cubic Yards (CY), Square Feet (SF), Each (EA), Linear Feet (LF)

**Table 3.6.3-2. American River Erosion Contract 4A Alternative 3c Bike Reroute Quantity Summary Breakdown**

Material	#Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader

Material	#Loads	#Trucks	#Trips/ Day /Truck	#Days	Truck Capacity
Clearing & Grubbing	31	4	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		1	CS-323C Compactor
Aggregate Base Course		1		1	140H Grader 185 HP
Aggregate Base Course		1		1	D4 Bulldozer
Aggregate Base Course	59	8	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	26	4	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel 265hp
Imported Fill		1		7	CS-323C Compactor
Imported Fill		1		7	D4 Bulldozer
Imported Fill	665	12	8	7	Tandem 10 cubic yard, ISX Diesel 365hp
Structural Steel Pipe Arch' (1"-6"X "'-8")		1		1	Truck Mounted Cram"
6" two-component paint traffic stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mobilization/Demobilization	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

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***American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation***

All other components of the Proposed Action would remain unchanged after selection of Alternative 3c.

### **3.6.4 Alternative 3d: Bike Trail Reroute Along Railroad**

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***American River Erosion Contract 4A***

Alternative 3d would be similar to the Proposed Action, except that the permanent bike trail route would be a paved bike trail closer to the river along an existing off-road bike trail (Figure 3.5.3-4). Instead of going under the railroad and reconnecting to the bike trail near Del Paso Boulevard, the bike trail would head north following the railroad and reconnect to the bike trail just past the berm. Installing this route would require vegetation trimming, vegetation clearing, regrading, raising the existing road, and paving. Drainage features such as culverts or precast arches may need to be installed. This route would be longer than the Proposed Action, approximately 0.4 miles. Since the route is longer than the Proposed Action, installing this route would require more vegetation trimming, vegetation clearing, regrading, and paving than the Proposed Action.

**Table 3.6.4-1. American River Erosion Contract 4A Alternative 3d Bike Reroute Quantity Summary**

Material	Quantity	Unit
Clearing & Grubbing	4,915	cubic yard

Material	Quantity	Unit
Aggregate Base Course	6,553	cubic yard
Hot Mix Asphalt (Type A)	1,474	cubic yard
Seeding & Mulching	398,147	square feet
6" Two-Component Paint Traffic Stripe	13,273	linear feet

**Table 3.6.4-2. American River Erosion Contract 4A Alternative 3d Bike Reroute Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Clearing & Grubbing		2		3	D4 Bulldozer
Clearing & Grubbing		1		3	902 Front End Loader
Clearing & Grubbing	246	12	8	3	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		4	CS-323C Compactor
Aggregate Base Course		1		4	140H Grader 185 HP
Aggregate Base Course		1		4	D4 Bulldozer
Aggregate Base Course	655	24	8	4	Tandem 10 cubic yard, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	147	20	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		2		1	Truck and Trailer (flatbed) Diesel 265h"
6" two-component paint traffic stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mobilization/Demobilization	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

***American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation***

All other components of the Proposed Action would remain unchanged after selection of Alternative 3d.

## 3.7 Alternative 4: Alternatives for ARMS

The following alternatives would change ARMS. All other components of the Proposed Action (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, SRMS, and the Piezometer Network) would remain the same.

### 3.7.1 Alternative 4a: ARMS Pond Retention (CEQA only, Program Level)

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#### *American River Mitigation Site*

County Parks proposed an alternative for the ARMS during the NEPA Scoping Period that would be similar to the Proposed Action, except that the design would be changed to retain a portion of the existing man-made pond, reducing the need for fill material to create riparian topography and reducing the transportation, air quality, and GHG emissions impacts. This alternative would also retain the option for future limited interpretive activities in and around the pond as described in the Discovery Park Area Plan portion of the American River Parkway Plan. This alternative with a retained pond has been rejected from further consideration under NEPA as it does not meet mitigation needs for VELB and salmonid habitat but is being carried forward for consideration as Alternative 4a under CEQA only. As with the ARMS Proposed Action, Alternative 4a is being considered at a program level.

A berm with a top width of 30 feet would be constructed to retain the western portion of the existing man-made pond, and floodplain habitat (generally at elevations of 2 to 10 feet) would be constructed on the eastern portion of the site, removing a portion of the existing man-made pond. The remnant pond would be approximately 30 acres, and this alternative would include approximately 51 acres of floodplain habitat below elevation 24. This alternative was proposed to include an approximately balanced cut and fill, with about 720,000 cy of material being excavated and reused during construction of the berm and floodplain habitat. However, as design for the ARMS has progressed and soil data has become available, the Proposed Action and Alternative 4b both assume that only about 20 percent of material excavated from the ARMS is suitable for reuse. Therefore, the analysis for Alternative 4a assumes that approximately 576,000 cy of new material would need to be imported, compared to 857,000 cy for the Proposed Action, an approximately 30% reduction in imported material.

Figure 3.7.1-1 illustrates Alternative 4a. This alternative would not meet all of the ARCF habitat mitigation requirements at this site, requiring identification of another site to meet remaining mitigation needs, or requiring purchase of credits at approved mitigation banks. Depending on additional acreage needed to meet mitigation requirements, alternate sites could include Arden Pond (evaluated in the 2021 Lower American River Erosion Contract 2 SEIS/SEIR) and/or Wood Lake (evaluated conceptually in the 2007 Folsom Dam Safety Flood Damage Reduction EIS/EIR). Additionally, an existing bald eagle (*Haliaeetus leucocephalus*) nest had not yet been identified as a constraint at the time this conceptual design was developed. The nest tree and area immediately adjacent would need to be retained, requiring adjustments to the location of the berm and the grading boundary to permit a similar acreage of habitat creation and remnant pond

as originally proposed. Alternative 4b is also analyzed to demonstrate an alternative option for retaining a portion of the existing pond while avoiding conflict with the eagle's nest.

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***American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, Piezometer Network***

All other components of the Proposed Action would remain unchanged after selection of Alternative 4a.



Figure 3.7.1-1. Conceptual Site Design with Pond for Alternative 4a

### **3.7.2 Alternative 4b: ARMS Pond Retention (CEQA only, Program Level)**

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#### ***American River Mitigation Site***

Alternative 4b is considered under CEQA only, at a program level. This alternative would be similar to the Proposed Action, except that the design for the ARMS would be changed to retain a portion of the existing man-made pond. This alternative was developed in response to County Parks' letter in response to the NOI, with the intention of identifying an alternative design that could retain a portion of the pond while avoiding known site constraints, including the eagle's nest. Retaining a portion of the pond would reduce the need for fill material to create riparian topography, thereby reducing the construction-related transportation, air quality, and GHG emissions impacts, enabling continued use of the pond by migratory waterfowl and retaining the option for future limited interpretive activities in and around the pond as described in the Discovery Park Area Plan portion of the American River Parkway Plan.

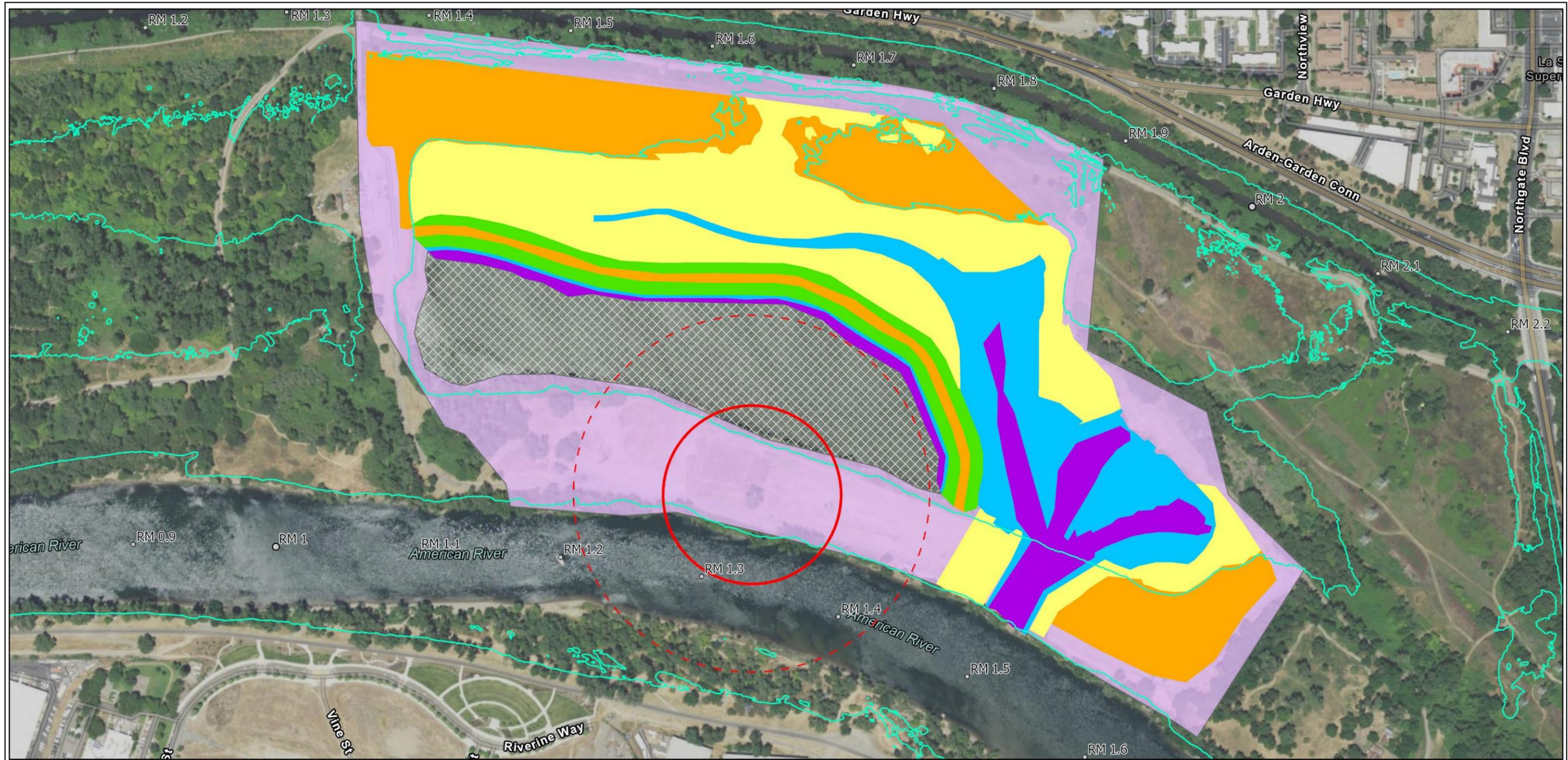
Design of this alternative was adjusted after field investigations identified site constraints relating to buried debris at various locations, pond sediments that cannot be disturbed, a bald eagle's nest requiring associated buffers, and the discovery of sensitive cultural and Tribal resources. In Alternative 4b, a berm with a top width of 30 feet would be constructed to retain the southern portion of the existing man-made pond, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the existing pond. The remnant pond would be approximately 20 acres, and this alternative would include approximately 54 acres of floodplain habitat below elevation 24.

Mitigated acreage generated from this alternative would include 47 acres of salmonid habitat, 29 acres of YBCU habitat, and 22 acres of VELB habitat. Alternative 4b would not meet all the remaining mitigation requirements for VELB or salmonid habitat onsite, requiring the identification of another offsite mitigation site for this alternative, or requiring purchase of credits at approved mitigation banks. Arden Pond has previously been considered as a location for salmonid mitigation, and either Arden Pond or another location on the Lower American River would need to be added to accommodate the remaining mitigation need. This alternative would require approximately 718,000 cy of fill material imported (compared to approximately 857,000 cy of fill for the Proposed Action) and placed onsite, resulting in an approximately 15 percent reduction in import and soil handling compared to the Proposed Action. Figure 3.7.2-1 illustrates Alternative 4b.

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***American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, Piezometer Network***

All other components of the Proposed Action would remain unchanged after selection of Alternative 4b.



**Alternative 4b Project Footprint (CEQA Only)**

○ RM tenths  
 □ OHWM

Updated 12/8/2023

■ Highflow Channel (Riverine)	■ Berm
■ Low Riparian Connected Floodplain	■ Construction Access
■ Lowflow Channel (Riverine)	■ Pond
■ Upland	■ Work Restriction Area

□ Seasonal Work Restriction Area

0 300 600 Feet

N

**US Army Corps of Engineers**  
 Sacramento District

Figure 3.7.2-1. Conceptual Site Design with Pit for Alternative 4b

## **3.8 Alternative 5: Alternatives for SRMS**

The following alternatives would change SRMS. All other components of the Proposed Action (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network) would remain the same.

### **3.8.1 Alternative 5a: Purchase Mitigation Credits**

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#### ***Sacramento River Mitigation***

Section 1163 of the Water Resources Development Act of 2016 (WRDA 2016) requires that the “Secretary shall issue implementation guidance that provides for the consideration in water resources development feasibility studies of the entire amount of potential in-kind credits available at mitigation banks approved by the Secretary and in-lieu fee programs with an approved service area that includes the location of the projected impacts of the water resources development project.” On March 25, 2019, the Director of Civil Works issued revised implementation guidance for Section 1163 of WRDA 2016, setting forth Corps policy governing use of mitigation banks and in-lieu fee programs to satisfy mitigation requirements for water resource development projects.

Alternative 5a would eliminate the need to construct the SRMS through the purchase of all remaining, required mitigation credits from USFWS-Approved Conservation Banks, whose service areas cover the ARCF 2016 Project impacts. There would be no additional resource impacts; however, this alternative would not comply with the current NMFS BO (#WCRO-2024-01347, dated March 13, 2025). According to RIBITS, there are 20 mitigation banks whose service area covers the ARCF 2016 project site, and which have credits available. Of those 20, only one lists VELB credits (River Ranch VELB Conservation Bank), and two list SRA/Salmon credits (Fremont Landing Conservation Bank and Cosumnes Floodplain Mitigation Bank). There are new banks being developed and proposed to Resource Agencies for VELB and SRA/Salmonids and Delta Smelt; However, their timeline is unknown. This alternative would be analyzed at a project level.

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#### ***American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek, American River Mitigation, Piezometer Network***

All other components of the Proposed Action would remain unchanged after selection of Alternative 5a.

### **3.8.2 Alternative 5b: Watermark Farms for Sacramento River Mitigation Site (Program Level)**

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#### ***Sacramento River Mitigation Site***

This Alternative would consider an alternative location to complete the ARCF Sacramento River Mitigation requirements. The alternative site is named Watermark Farms and is located along the Sacramento River in Yolo County, from approximately River Mile 50.5 to River Mile 51.25 and

includes the water side of the levee, from top of slope to toe of slope, continuing from the toe of slope to the edge of the river, as well as the landward side of the levee and adjacent existing farmland. This site is in private ownership and would need to be purchased before being used for mitigation as part of the ARCF 2016 Project. Figure 3.8.2-1 shows the conceptual design for Watermark Farms. All information available on Watermark Farms originated in the ARCF Mitigation Site Concept Development and Evaluation Report (GEI, cbec, and ICF 2020). This alternative would be evaluated at a program level of detail.

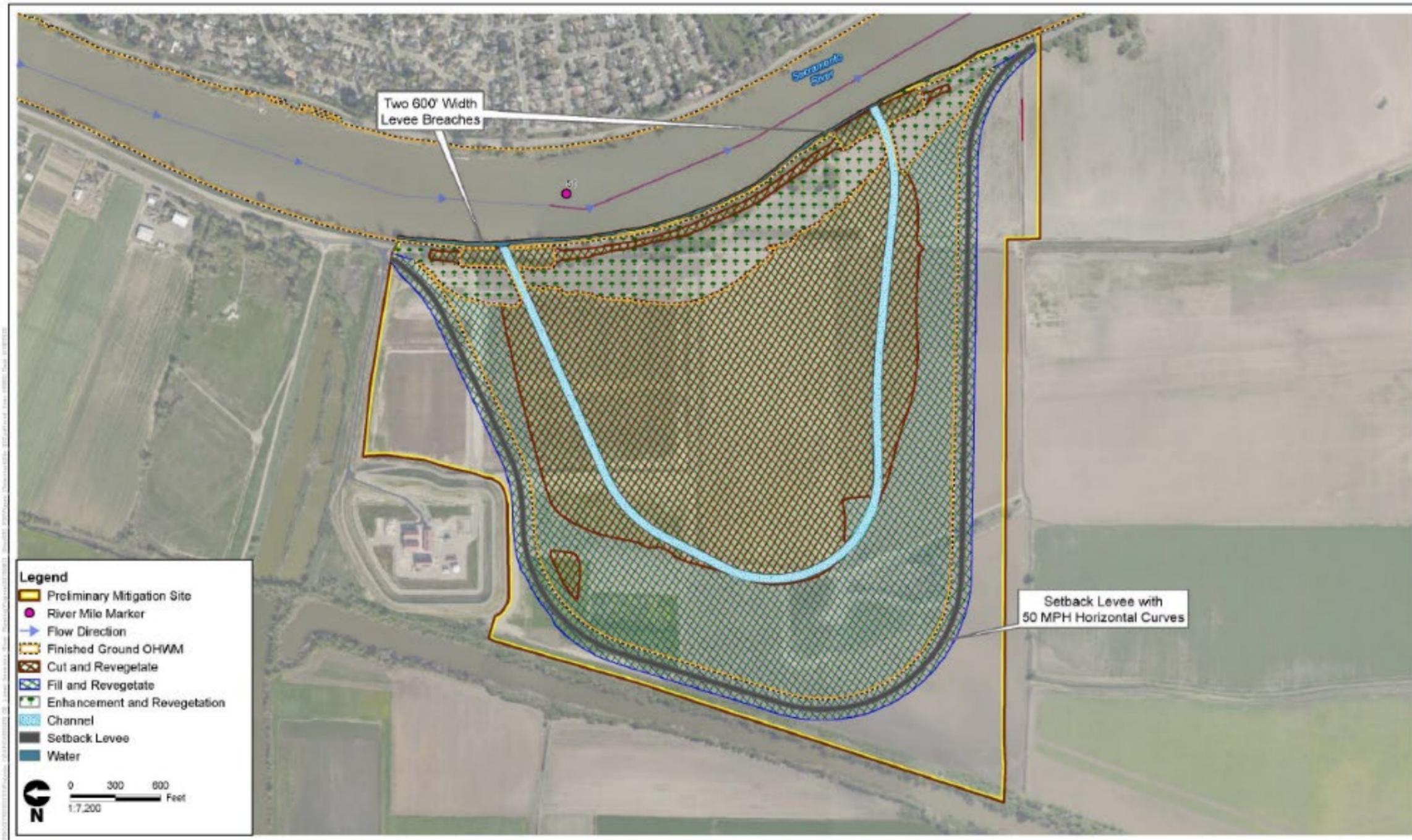


Figure 4. Conceptual design for potential mitigation site SRM-002

Figure 3.8.2-1. Conceptual Designs for Watermark Farms

### 3.8.2.1 Features of the Alternative

The conceptual design would restore approximately 227 acres of riverine and floodplain habitat to provide ecological uplift for Federal and state special-status species and their habitats. The concept proposes breaching the existing levee along the banks of the Sacramento River and creating a new setback levee. Breaching the existing levee and creating a secondary channel would provide expansive floodplain and shallow-water channel habitat, suitable for salmonid species, green sturgeon, and Delta smelt. Grading on the interior of the site would gradually slope from the toe of the proposed setback levee to the secondary channel, with the secondary channel draining to the Sacramento River. The crown of the proposed setback levee maintains the elevation of the existing levee. The landward side of the proposed levee slopes to the existing ground with a 2:1 slope; the waterside extends to a proposed floodplain elevation of 22.5 feet with a 4:1 slope. South River Road would be realigned to follow the top of the proposed levee and would match existing conditions (two 10-foot-wide lanes with 5-foot-wide shoulders). The proposed levee alignment accommodates 50 mile per hour horizontal curves, which conforms to the existing speed limit of South River Road at this location. Horizontal curves were determined using 2011 American Association of State Highway and Transportation Officials standards with 4% super elevation. A total of 4,700 feet of the existing levee and road would be demolished, and two 600-foot-long levee breaches would be created at the north and south side of the site by excavating to the existing floodplain elevation. The remainder of the existing levee would be lowered by approximately 2 feet.

A 6,640-foot-long channel would connect the interior of the site to the Sacramento River and extend through both levee breaches. The invert of the channel would be 5 feet at the confluence with the Sacramento River and would extend to an elevation of 8 feet at a high point at the interior of the site. This falls within the tidally active range modeled for the site. The proposed channel would be 60 feet wide and would transition from 8 feet deep at the confluence to 2 feet deep at the channel high point. Channel dimensions were approximated and are not based on hydraulic modeling.

Grading within the interior of the proposed setback levee would maximize floodplain habitats within an elevation range between 8.1 and 22.5 feet. The setback levee is not included in habitat calculations. The concept provides 194.5 acres of modified (graded) habitat and 32.6 acres of enhanced habitat (areas that are revegetated but not graded). Of that habitat, approximately 9.8 acres would be tidally active (between 5.0 and 8.1 feet in elevation), About 208.8 acres would be floodplain (between 8.1 and 22.5 feet in elevation), and 6.8 acres would be upland (greater than 22.5 feet in elevation). Irrigation would be installed for the plant establishment period in the planted areas. Shoreline treatments would include placing IWM structures where feasible to enhance fish habitat. These zones may also include planting emergent vegetation such as bulrush (*Schoenoplectus* spp).

Concept grading was evaluated in two separate zones: the setback levee and habitat grading. The setback levee was delineated as the grading to the existing ground on the landward side and to an elevation of 22.5 feet on the water side. About 793,781 cubic yards of finished grade soil, compacted to levee construction standards, would be required. If a compaction standard of 25% is assumed, this may require closer to 1 million cubic yards of material for levee construction. Levee grading was not included in the grading volumes used for cost estimating in this report

because a separate unit cost for levee construction was provided instead. Habitat grading would not require strict compaction standards. Using a cut-to-fill ratio of 1:1, the concept would require 529,108 cubic yards of cut and 520,640 cubic yards of fill for habitat areas. A value of 530,000 cubic yards was used for cost estimating and it was assumed that habitat grading could be balanced on-site; measures may include steepening the levee embankment on the water side, enlarging the proposed channel, and/or providing additional channels, further lowering the existing levee elevation, and borrowing material from the land side of the proposed setback levee. This concept assumes that levee construction would not require hauling material from off-site. If it becomes necessary, the construction contractor would acquire construction materials from outside sources. The physical characteristics of this material would meet USACE requirements as established in the project plans and specifications. The material sources also must have current permits for operation, meet the required environmental standards, be approved in writing by USACE and within 50 miles of the project site. The construction contractor would be responsible for selecting a disposal site located outside the construction limits. This disposal site would have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

### **3.8.2.1.1 Construction Schedule, Materials, and Equipment**

This site would need to be purchased prior to construction. It is anticipated that construction would occur over three construction seasons, with vegetation removal occurring the fall and spring before construction begins. Construction could be phased in a way that builds the setback levee the first season, grades the inner area and carves the channel the second season, and breaches the levee the third season, hydrologically connecting the site to the Sacramento River. Vegetation planting and greening could occur in any of the construction seasons. The site would be constrained by the flood season, in-water work window, and nesting bird work windows. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

To the maximum extent possible, material removed from the levee and interior of the site would be used to build the levee setback and modify the internal elevations. The exact volume of cut and fill material required to construct the SRMS has not yet been determined; interior grading is estimated to be a balance of cut and fill with no import of material, but that up to 1 million cubic yards would be needed for the setback levee.

### **3.8.2.1.2 Haul Routes, Access Routes, and Staging Areas**

The Watermark Farms site access and haul routes would be via South River Road and by private farm roads within the site. Trucks and workers would access the regional road network via Burrows Avenue, Courtland Road, Sutter Slough Bridge Road, Jefferson Boulevard/CA-84, and US-50. Access to the site is controlled by locked gates at the turn off from South River Road. Some work such as tree trimming, minor grading, paving, and adding aggregate may need to be done along the haul/access routes to allow access to the site. The staging areas would be located within the SRMS boundary. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas. Waterside staging areas would be subject to strict containment and spill prevention BMPs. Once

work is complete, staging areas would be returned to their initial conditions or planted with native vegetation to provide additional habitat. Because of the remote location, the project is unlikely to affect bus routes, bike trails, or emergency responder routes.

### **3.8.2.1.3 Operations and Maintenance**

A habitat management plan would be developed and implemented in coordination with USFWS, NMFS, and NFS to ensure that the native vegetation plantings are managed, monitored, maintained, and protected in perpetuity. This document would follow ER1105-2-100. The site could require temporary irrigation and beaver fencing to ensure vegetation growth and habitat success during the 8- to 10-year monitoring period. Maintenance and management activities could include, but are not limited to, plant replacement, weeding, invasive species management, irrigation, and trash removal. Long-term maintenance will transfer to the NFS.

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#### ***American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek, American River Mitigation, Piezometer Network***

All other components of the Proposed Action would remain unchanged after selection of Alternative 5b.

### **3.8.3 Alternative 5c: Delta Smelt Bank and Sunset Pumps Mitigation Credits (Program Level)**

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#### ***Sacramento River Mitigation***

Section 1163 of PL 144-322 (Water Resources Development Act of 2016 (WRDA 2016)) requires that the “Secretary shall issue implementation guidance that provides for the consideration in water resources development feasibility studies of the entire amount of potential in-kind credits available at mitigation banks approved by the Secretary and in-lieu fee programs with an approved service area that includes the location of the projected impacts of the water resources development project.” On November 16, 2017, the Acting Assistant Secretary of the Army, issued a memorandum with implementation guidance for WRDA 2016 covering Civil Works activities’ wetland mitigation (including other waters of the U.S.). It applies to habitat mitigation for general fish and wildlife under the Fish and Wildlife Coordination Act and Federally listed species habitat under the Endangered Species Act.

This implementation guidance aligns the USACE Civil Works policy partially with the USACE Regulatory 2008 “Compensatory Mitigation Rule” (40 CFR Part 230 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule) preferences hierarchy. Instead of onsite and offsite mitigation being viewed most favorably as it had been in the past in Civil Works policy, the 2019 implementation guidance shifted preferences to use offsite mitigation banks and in-lieu fee programs as coequal mitigation alternatives so long as those programs or banks were USACE-approved by Regulatory, and a USACE-approved functional assessment is conducted. The implementation guidance also states that pre-release credits can be reserved; if the bank is approved and if a USACE-approved functional assessment is conducted. In practice, this allows USACE to react to the current market conditions in terms of analyzing alternatives that take into consideration 1) bank credit availability, 2) in-lieu fee availability, 3) availability of suitable on-site mitigation, and 4) off-site mitigation properties.

This Alternative would combine three less-conventional components to complete the ARCF Sacramento River Mitigation requirements. The first component is purchasing Delta Smelt Conservation Bank credits from USFWS-approved banks whose service area complies with the requirements in the BO. The second component is funding a project identified on NMFS recovery plans and listed as high priority for Reclamation, DWR, and USFWS. The project is called Sunset Pumps and includes the removal of a rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon, and steelhead. A Feasibility/Alternatives Evaluation Study for the Sunset Weir and Pumps Fish Passage Project was prepared by DWR in 2022 (Department of Water Resources, 2022). The lead federal agency for Sunset Pumps is completing their own NEPA/CEQA compliance; however, there are no publicly available documents at the time this Draft SEIS/SEIR has been written. The third component of this alternative is also facilitated through the Sunset Pumps Project. In agreements with USFWS to remove a weir and update the pumping facility, the local irrigation district would be required to provide water to two local wildlife refuges. By funding the project and supporting the water allocation, the USACE would receive “credit” for riparian habitat mitigation within the yellow-billed cuckoo migration corridor for the 2016 ARCF Project. This alternative would be evaluated at a program level because the Sunset Pumps Project is still early in its CEQA and NEPA compliance.

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***American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek, American River Mitigation, Piezometer Network***

All other components of the Proposed Action would remain unchanged after selection of Alternative 5c.

### **3.9 Alternative 6: No Project Alternative (CEQA)**

For CEQA, the No Project analysis must discuss the existing conditions (generally those at the time the Notice of Preparation (NOP) is published), as well as what would be reasonably expected to occur in the foreseeable future, based on current plans and consistent with available infrastructure and community services, if USACE and CVFPP were not to adopt and implement the Proposed Action (State CEQA Guidelines Section 15126.6[e][2]). For this document, the existing conditions are set at January 2023.

Although some previously authorized ARCF 2016 Project components have been constructed, the CEQA No Project Alternative does not include additional improvements beyond those already constructed and would result in a continued risk of catastrophic flooding.

Under the No Project Alternative, USACE and CVFPP would not conduct any additional work to improve flood system protection in the Sacramento and American Rivers or Magpie Creek, or to address levee erosion concerns that have been identified along the Sacramento and American Rivers. Because additional flood risk reduction measures would not be implemented to address existing flood control concerns on the lower American and Sacramento Rivers, the Sacramento metropolitan area would remain at risk for catastrophic flooding which could result in the loss of lives and irreparable damage to homes and business.

Under the No Project Alternative, current O&M activities by USACE and CVFPP would continue, and the existing flood protection system would continue to provide some protection from flooding events. However, the existing system would continue to require risk reduction measures to meet current levee design criteria. In addition, the associated risk to human health and safety, property, the environment, and the adverse economic effect that serious flooding could cause would continue, and the risk of a catastrophic flood would remain high.

### **3.10 Environmentally Superior and Environmentally Preferred Alternative(s)**

The State CEQA Guidelines require identification of an environmentally superior alternative from among the proposed project (i.e., Proposed Action) and the alternatives evaluated. CEQA Guidelines section 15126.6(e)(2) states that “If the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives”. Federal NEPA guidelines also recommend that an environmentally preferred alternative be identified; however, under NEPA, that alternative does not need to be identified until the final record of decision is published. Therefore, the discussion in this section of the environmentally superior alternative is intended to satisfy CEQA requirements.

Under the No-Action Alternative, the remaining components of the authorized 2016 ARCF GRR FEIS/EIR would be constructed. As defined in the 2016 ARCF GRR FEIS/EIR and the previous supplemental documents identified in Section 2.1.1., development of the action alternatives included consideration of potential effects on environmental resources (e.g., waters of the United States, air quality, and habitat).

Analysis of these and other impacts is provided in Chapter 4. Significant impacts to certain environmental issue areas (e.g., noise, transportation, natural resources, visual resources), would not vary regardless of the action alternative selected. The Proposed Action and Action Alternatives analyzed in this SEIS/SEIR represent both new alternative components and substantial refinements to Alternative 2 of the ARCF GRR FEIS/EIR. These refinements would substantially reduce or avoid several of the significant impacts identified in the ARCF GRR FEIS/FEIR, including hydraulic impacts, impacts on riparian vegetation, and loss of heritage oaks. Table 3.3.4-1 presents a summary of the various alternatives that have been considered for the project components.

Based on the conclusions in Chapter 4, the Proposed Action (Alternative 2) would have the fewest overall environmental impacts, as well as the least environmentally damaging impacts, and therefore would be the environmentally superior alternative under CEQA.

# Chapter 4. Affected Environment and Environmental Consequences

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## 4.1 Introduction

### 4.1.1 Approach to the Analysis

Chapter 4, “Affected Environment and Environmental Consequences,” includes a summary of the impacts of the Proposed Action and the Alternatives and identifies mitigation measures that could be implemented to reduce significant impacts. The chapter subsections in Chapter 4 summarize the detailed analyses that are included in Appendix B of this SEIS/SEIR containing comprehensive existing conditions, laws, and regulations applicable to the individual resources, methodology of analysis, and the basis of significance for impact determination.

Included in this SEIS/SEIR is analysis required by NEPA implementing regulations, 40 CFR § 1502.16 Environmental Consequences, which includes the following:

1. The environmental impacts of the proposed action and reasonable alternatives to the proposed action and the significance of those impacts. The comparison of the proposed action and reasonable alternatives shall be based on this discussion of the impacts.
2. Any adverse environmental effects that cannot be avoided should the proposal be implemented.
3. The relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity.
4. Any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented.
5. Possible conflicts between the proposed action and the objectives of Federal, regional, State, Tribal, and local land use plans, policies, and controls for the area concerned.
6. Energy requirements and conservation potential of various alternatives and mitigation measures.
7. Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures.
8. Urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.

9. Means to mitigate adverse environmental impacts.
10. Where applicable, economic and technical considerations, including the economic benefits of the proposed action.

The State CEQA Guidelines require an EIR to include an evaluation of potentially significant effects on the physical environment associated with a “proposed project” (Alternative 2 or “Proposed Action” for this project) and to identify feasible mitigation for any significant adverse effects. As stated in 14 California Code of Regulations (CCR) Section 15126.2:

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 is commenced. 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 project and applicable adopted general plans and regional plans (14 CCR Section 15125[d]). 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 (CCR Section 15126.4[a][2]). Under CEQA, mitigation measures are not required for effects that are found to be less than significant. Chapter 4, “Affected Environment and Environmental Consequences,” is organized by issue area, and includes all of the topics in the CEQA Environmental Checklist (State CEQA Guidelines Appendix G, as amended).

## **4.1.2 Format and Content**

Each section of Chapter 4 identifies the key setting information and effects analysis for a particular topic area. These sections provide an overview focused on the significant effects of the Proposed Action and the Alternatives, briefly summarizing more detailed analysis which is included in Appendix B, “Detailed NEPA and CEQA analyses.” Sections in Chapter 4 do not necessarily include a discussion of every topic included in Appendix G of the State CEQA Guidelines, nor do the “Existing Conditions” include all regulations and setting information considered in the analysis. The topic sections in Appendix B include additional detailed information and analysis, including analysis for each of the questions included in Appendix G of the State CEQA Guidelines, and additional topics required for NEPA analysis, including Social Impacts to At-Risk Communities.

The sections in Chapter 4 are intended to provide a concise summary of anticipated effects for each topic area.

Mitigation measures have been previously adopted for the ARCF 2016 Project in the ARCF GRR FEIS/EIR and the previous supplemental documents identified in Section 2.1.1, “Related Documents and Resources.” New mitigation measures, or any mitigation measures that have been modified after their previous adoption, are identified in the text. All mitigation measures were evaluated to determine whether these measures themselves would have the potential to cause significant impacts on the physical environment. Other than ARMS and SRMS, which were evaluated at a program level, no other mitigation specified in the SEIS/SEIR were found to have the potential to cause significant impacts on the physical environment.

## **4.2 Human Environment**

### **4.2.1 Transportation and Circulation**

#### **4.2.1.1 Existing Conditions**

##### **4.2.1.1.1 Regional and Local Roadways**

Major highways used to access the project sites include Interstate 5 (I-5), I-80, I-80 Business, State Route (SR) 160, and U.S. Highway 50. Other major roads used to access project sites and haul materials primarily include Howe Avenue, Watt Avenue, Folsom Boulevard, Fair Oaks Boulevard, Exposition Boulevard, American River Drive, Raley Boulevard, Vinci Avenue, and Dry Creek Rd. A complete description of haul routes and access areas for each project component can be found in Section 3.5, “Alternative 2: Proposed Action.”

##### **4.2.1.1.2 Bicycle and Pedestrian Facilities**

The Jedediah Smith Memorial Trail extends 32-miles from Discovery Park near where I-5 crosses the American River, to Beal’s Point Recreation Area. The trail can be accessed from most parks in the American River Parkway and several parks in Folsom. The trail is paved and is commonly used by bicyclists for commuting and recreational purposes.

The American River Contract 3B (North and South), Contract 4A, and Contract 4B project components include sites located alongside the Jedediah Smith Memorial Bike Trail.

The Sacramento River Parkway includes a paved trail along the levee top from Garcia Bend Park to Freeport Boulevard, passing through the project site for the Sacramento River Erosion Contract 3.

The Sacramento Northern Bike Trail extends from C Street in midtown Sacramento to the community of Elverta in northern Sacramento County. The Sacramento Northern Bike Trail passes the American River Erosion Contract 4A and MCP components.

## 4.2.1.2 Environmental Effects

### 4.2.1.2.1 No Action Alternative

Impacts to transportation analyzed under the 2016 GRR FEIS/EIR and thus for this SEIS/EIR No Action Alternative would involve use of heavy vehicles to transport materials along highways and local roads that provide access to the project levees. Haul trucks would increase traffic on major streets such as Watt Avenue, Fair Oaks Boulevard, Howe Avenue, and Folsom Boulevard for American River levee improvements and on Pocket Road, Freeport Boulevard, and Riverside Boulevard for Sacramento River improvements.

Impacts under the No Action Alternative would be short-term and significant until construction is completed. However, after construction is completed, there would be no long-term impacts, and traffic would return to the pre-project conditions.

### 4.2.1.2.2 Proposed Action

**Table 4.2.1-1. Summary of Transportation and Circulation Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.1-a and c	Conflict with a program, plan, ordinance or policy relating to transportation, or increase hazards due to design or uses	Significant and Unavoidable	Significant and Unavoidable.
2.1-d	Result in inadequate emergency service.	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

**Table 4.2.1-2. Transportation and Circulation Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.1-a, c	MCP, ARMS, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B	TRANS-1	Significant and Unavoidable	Significant and Unavoidable
2.1-a, c	Sacramento River Erosion Contract 3, SRMS	TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant with Mitigation Incorporated
2.1-d	MCP, ARMS, SRMS, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3	TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Notes: The Piezometer Network installation would have minimal to no effect on Transportation and Circulation.

A more detailed description of the impacts of the Proposed Action to transportation and details of Mitigation Measure TRANS-1 is available in Appendix B Section 2.1 “Transportation”.

### *Magpie Creek Project*

Raley Boulevard would be closed to through traffic between Santa Ana Avenue and Vinci Avenue for an estimated 3-month period during the construction of the new crossing structure for the MCDC. Impacts to emergency routes from the road closures would be mitigated with Mitigation Measure TRANS-1; however, the Raley Boulevard closure would still be significant and unavoidable under both NEPA and CEQA.

### *American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B*

Erosion protection work from American River Contract 3B and American River Contract 4A would impact the Jedediah Smith Memorial Trail. These impacts would be temporary, only occurring during the summer construction seasons. Mitigation Measure TRANS-1 would reduce the transportation impact to bicycle and pedestrian facilities to less than significant. Transportation of materials on and off project sites for American River Erosion Contract 4A and American River Erosion Contract 4B would occur throughout the construction timeline. As for other project components, the increased truck trips for material hauling would cause a significant impact to transportation resources, remaining significant and unavoidable after implementing Mitigation Measure TRANS-1.

### *Sacramento River Erosion Contract 3*

Erosion protection work would impact the Sacramento River Parkway trail between Garcia Bend Park and Freeport Boulevard. These impacts would be temporary, only occurring during the summer construction season. Detours for work disrupting this segment of the Sacramento River Parkway trail would be coordinated with the City of Sacramento. Mitigation Measure TRANS-1 would be implemented to reduce the significant impacts to bicycle and pedestrian facilities to less than significant. Materials would be hauled to the project location for erosion work by barge; therefore, this project component would include only incidental truck trips for small volumes of materials not transportable by barge. The impact from increased heavy truck trips would be less than significant with mitigation.

### *American River Mitigation Site, Sacramento River Mitigation Site*

Construction activities for the ARMS and the SRMS would include material hauling via truck over a 2-year (SRMS) or 3-year (ARMS) period. For the ARMS, this would result in a significant impact that would remain a significant and unavoidable impact even after implementing Mitigation Measure TRANS-1. However, Mitigation Measure TRANS-1 would reduce SRMS impacts to Less than Significant with mitigation (under CEQA) and short-term and minor effects that are less than significant with mitigation incorporated (under NEPA).

#### **4.2.1.2.3 Alternatives**

##### *Alternative 3a*

Alternative 3a would only change the American River Contract 4A by replacing the waterside berm with a landside berm between the levee and the State Route 160 bridge piers. This would avoid temporary or permanent bike trail closures and reduce the amount of materials and

equipment needed that are part of the Proposed Action, reducing transportation impacts for the American River Contract 4A project component compared to the Proposed Action, but not changing significance conclusions. All other project components would be the same as the Proposed Action.

### ***Alternatives 3b, 3c, and 3d***

Alternatives 3b, 3c, and 3d would slightly change the American River Contract 4A bike trail re-route. The modifications to the bike re-route under these Alternatives would not substantially change the distance and the materials volumes and associated truck trips and transportation impacts would be unchanged from the Proposed Action. Therefore, impacts would remain the same as the Proposed Action.

### ***Alternative 4a (CEQA-Only)***

Alternative 4a (CEQA-Only) would change the ARMS by retaining a portion of the existing man-made pond, which would reduce the need for fill and associated truck trips compared to the Proposed Action. Implementing Alternative 4a would reduce the number of heavy truck trips by approximately 30 percent compared to the Proposed Action but would still result in a significant and unavoidable impact for this project component.

### ***Alternative 4b (CEQA-Only)***

Alternative 4b (CEQA-Only) would change the ARMS by retaining a portion of the existing man-made pond, which would reduce the need for fill and associated truck trips compared to the Proposed Action. Implementing Alternative 4b would slightly reduce the number of heavy truck trips compared to the Proposed Action but would still result in a significant and unavoidable impact for the ARMS project component.

### ***Alternatives 5a and 5c***

Alternatives 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects already being covered under NEPA/CEQA from other agencies. Consequently, there would be no impacts to transportation and circulation for the SRMS project component under this alternative, compared to the Proposed Action's less than significant impact after mitigation is incorporated for the SRMS project component.

### ***Alternative 5b***

Watermark Farms, located on the right bank of the Sacramento River between RM 50.5 and 51.25 would be used as the mitigation site for Sacramento River-related habitat impacts. This alternative would use different haul routes than those identified for the Proposed Action, and would require substantially greater soil import, resulting in a substantial increase in truck trips and an increase in transportation impacts compared to the Proposed Action. Alternative 5b would have a significant and unavoidable transportation impact for the SRMS project component, compared to a less-than-significant impact after mitigation for this project component under the Proposed Action.

## **4.2.2 Recreation**

### **4.2.2.1 Existing Conditions**

Water recreation such as rafting, kayaking, paddleboarding, and fishing is common on the American River. Motorized boating, fishing and water skiing are common on the Sacramento River. The Watt Avenue boat launch is within the project site. Garcia Park and Miller Park boat launches would be used to access the Sacramento Erosion Contract 3 project site. There is no water-based recreational opportunities known within the Magpie Creek area.

The Jedediah Smith Memorial Trail is an important multi-use trail within the project site. In addition, the Sacramento Northern Bike Trail is within the project site. Both the American River Parkway (used for walking, cycling, running, hiking, bird watching, wildlife viewing, and horse riding) and the Sacramento River Parkway (used for biking and pedestrian access) are in the project site. Larchmont Community Park, University Park, Garcia Ben Park, Miller Regional Park, Camp Pollock, Discovery Park, the Walter S Ueda Parkway, the Dry Creek Parkway, Waterton Way River Access, Kadema Drive River Access, Estates Drive River Access, and North Point Way River Access are within the Project Site. In addition, Grand Island is in the Sacramento- San Joaquin Delta which is an area frequented by boaters and other water recreators. A more detailed description, maps of the project sites in relation to the recreational areas are available in Appendix B Section 2.2.

### **4.2.2.2 Environmental Effects**

#### **4.2.2.2.1 No Action Alternative**

The detours and disruptions caused by closure of portions of the Jedediah Smith Memorial Trail and the top of levees along the American River during project construction conflict with the requirements of the Wild and Scenic Rivers Act, having a significant direct impact on the tranquility of river areas within the project site, and causing a significant unavoidable impact to recreational resources. Mitigation measures listed in section 3.14.6 of the 2016 ARCF GRR FEIS/EIR are being implemented to minimize the impacts as much as feasible, although short-term significant unavoidable impacts to recreational resources will occur. In addition, construction vehicles will cause significant unavoidable impacts to recreational resources kept open due to increases in traffic, noise, visual effects, odors, and air emissions. University Park would be closed during construction of American River Contract 2, reducing the recreational experiences of the park. Garcia Park and Miller Park would be used for construction staging for Sacramento East Levee Seepage, Stability and Overtopping Contract 2 and Contract 4.

Closures of the levee crown along the Sacramento River is having direct short-term impacts to recreation due to closure of the recreational trail along some sections of the top of the levee. Walking trails and the bike path may be rerouted during construction. Paved parking areas of Miller Park and Garcia Bend Park are being used for staging; however, the boat ramps are accessible to the public. Overall, direct short-term significant impacts to recreation along the Sacramento River are occurring.

Construction of Magpie Creek will have a less than significant impact on recreational facilities. The only recreational facility in the area is the Sacramento Northern Bike Trail and it will not be negatively impacted by construction activities.

The short-term significant unavoidable impacts related to recreational resources cannot be reduced to a less-than-significant level with implementation of mitigation measures listed in Section 3.14.6 of the ARCF GRR FEIS/EIR. Disturbances associated with construction work and hauling are unavoidable effects of the work to be completed and consequentially the significant impact on recreation cannot be avoided.

#### 4.2.2.2.2 Proposed Action

**Table 4.2.2-1. Summary of Recreation Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	Less than Significant	Short-term to Medium-Term and Moderate to Major effects that are Less than Significant.
2.2-b	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Short-term Significant and Unavoidable impact, Long-term Less than Significant	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant
2.2-c	Cause substantial disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable, Long-term Negligible Effects that are Less than Significant with Mitigation Incorporated

**Table 4.2.2-2. Recreation Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a	ARMS, SRMS, Piezometer Network	N/A	No Impact	No Impact
2.2-a	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP	N/A	Less than Significant	Short-term to Medium-Term and Moderate to Major effects that are Less than Significant
2.2-b	MCP, American River Erosion Contract 3B, Sacramento River, ARMS, SRMS, Piezometer Network	N/A	No Impact	No Impact
2.2-b	American River Erosion Contract 4A	REC-1	Short-term Significant and Unavoidable impact, Long-term Less than Significant	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant
2.2-c	MCP	REC-1	Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated	Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated
2.2-c	American River Erosion Contract 3B North and South, American River Erosion Contract 4B	REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable with Mitigation Incorporated, Long-term No Impact
2.2-c	American River Erosion Contract 4A	REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant.
2.2-c	Sacramento River Erosion Contract 3	REC-2	Less than Significant with Mitigation Incorporated	Short Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
2.2-c	ARMS	N/A	Short-term Significant and Unavoidable impact, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant
2.2-c	SRMS	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant.
2.2-c	Piezometer Network	N/A	Less-than Significant	Short-term and Minor effects that are Less than Significant

A more detailed description of the impacts of the Proposed Action to recreational resources and details of Mitigation Measures REC-1 and REC-2 are available in Appendix B Section 2.2 “Recreation.”

### ***Magpie Creek Project***

There would be a less than significant impact related to increasing existing use of nearby recreational facilities. No new recreational facilities would be built or expanded, so there would be no environmental impact from construction of new recreational facilities. The Sacramento Northern Bike Trail, which is the only major paved bike trail in the area and a major bike connection for the area to central Sacramento, would be detoured while the culvert under it is installed. The bike trail would be closed for several months and bicyclists would have to have to use streets instead. The detour and resulting loss of natural views and sounds would result in a direct short-term significant and unavoidable impact on recreation. Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Repair Project-related Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4), would be implemented but the impact would remain direct short-term significant and unavoidable impact on recreation.

Small portions of Walter S. Ueda Parkway and Dry Creek Parkway would be used for staging. Staging and site access would have a less than significant impact to recreation since only a small portion of the Walter S. Ueda Parkway and Dry Creek Parkway would be used and that area is generally fenced off.

### ***American River Erosion Contract 3B North and South, American River Erosion Contract 4B***

Because the service ratios (the parkland to population ratios that are set by local governments to ensure adequate parklands are incorporated into development) would not significantly change due to closures (Appendix B 2.2, Table 2.2-1) and because the recreational area closures would be temporary, there would not be any anticipated accelerated degradation on nearby recreational areas. There is a less than significant impact to increasing existing use of nearby recreational facilities. No new recreational facilities are being built or expanded, so there would be no environmental impact from construction of new recreational facilities. Closures of portions of the American River Parkway, disruptions from construction equipment, disruptions from haul trucks, and possible closures to hiking and equestrian trails (including those visiting the Pony Express National Historic Trail), and impacts to recreational events would create short-term significant and unavoidable impacts on recreation in the American River Parkway. Previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Repair Project-related Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4) would be implemented to try to reduce impacts as much as possible, but the impacts would still be short-term significant and unavoidable.

The proposed improvements will remove some areas of riparian forest, including mature forest. Improvement sites will generally be replanted with native trees, shrubs, and forbs. General characteristics and recreational possibilities of this reach of the river (scattered areas of riparian forest, interspersed with grassy areas and areas of low vegetation, with informal trails, maintenance roads, and the Jedediah Smith Trail), will be similar to existing conditions, although some wooded areas and some specific shoreline features will be removed or changed by the improvements. In the long-term, after the completion of construction and the 8 to 10-year initial growth of on-site replanting, a similar range of recreational opportunities will be available along

the Contract 3B North and South areas. Some informal trails and river access points will remain, others will be changed, and the scenic character of the area will include a different mix of wooded and open areas compared to existing conditions. Long-term impacts on recreation will therefore be less than significant.

Many parks are in the project site and would be used for staging and site access. All or part of these parks would be made unavailable during tree clearing, construction, and greening of the site. Some trees within the parks may need to be removed to allow for use of parks for access and staging. No trees would be removed at Larchmont Community Park. Larchmont Community Park hosts soccer leagues, which would be impacted by use of two of the soccer fields for staging. In addition, recreationalists at parks kept open near the project site would have degraded recreational experiences due to the views and sounds of construction equipment and haul trucks. Park closures, tree removal, soccer league impacts, and recreational experience disruptions to nearby parks would create a short-term significant and unavoidable impact to the recreational use of these parks. In the long-term, American River Erosion Contract 3B would result in less-than-significant impacts after construction activities are complete and vegetation matures.

### *American River Erosion Contract 4A*

As described under American River Erosion Contract 3B North and South, American River Contract 4A would not cause an increase in existing use of nearby recreational facilities in a manner that would cause a significant impact. The Jedidiah Smith Recreational Trail would be rerouted as part of the Proposed Action. The rerouted path would follow existing trails, but there would be vegetation removal along the trail. This rerouted bike trail is also adjacent to an equestrian route, so consultation would be conducted with County Parks to ensure that the bike trail reroute is designed in a manner that does not cause safety issues for equestrian use. The rerouted bike path would also be closer to the river and provide a larger buffer between the bicyclists and the urban areas on the landside of the levee, which would provide a recreational benefit to the area. Previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Repair Project-related Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4) would be implemented to reduce impacts as much as possible, but the impacts would still be short-term significant and unavoidable. However, the Proposed Action would result in a long-term less-than-significant impact to recreation after construction activities are complete and vegetation matures.

### *Sacramento River Erosion Contract 3*

Similar to what is already described under American River Erosion Contract 3B North and South, Sacramento River Erosion Contract 3 would not cause an increase in existing use of nearby facilities in a manner that would cause a significant impact. The top of levee portions of the Sacramento River Parkway, the North Point Way River Access, and bike trails would be closed to recreation for 8 weeks during tree clearing which is anticipated to occur between November and February prior to the 2026 and 2027 construction years. Since this closure would only be during tree clearing, detours would be provided under previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Repair Project-related Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4), there would be a less-than-significant impact on recreation in

the area due to tree clearing. Small portions of the Sacramento River Parkway, consisting of a strip of land at the edge of the park and project, would be closed during construction. Since these areas are small and most of the Sacramento River Parkway would be accessible there would be a less-than significant-impact on recreation in the area due to construction.

Construction from barges could disrupt boaters recreating on the Sacramento River; however, Mitigation Measure REC-2, Implement Measures to Notify Boaters (See Appendix B 2.2, Section 2.2.3.4), would be implemented to ensure that impacts to boaters would be less than significant. Finally, use of private docks within the project footprint could be impacted by construction. A less-than-significant impact to the recreational use of private docks is anticipated because of the limited in-water rights specified in dock owners' encroachment permits, including the condition that docks may be removed to facilitate levee reconstruction work.

### *American River Mitigation Site*

There would be no increase of use of nearby recreational facilities. No new recreational facilities are being built or expanded, so there would be no environmental impact from construction of new recreational facilities. It is not anticipated that recreational facilities would need to be closed due to the Proposed Action. Accordingly, no project-related pressure on nearby recreational facilities will arise. The ARMS was privately owned until 2023. It is currently not accessible to the public, and the design features would not include developing additional recreational resources. Additionally, "No Trespassing" signs would be installed. Since the property would remain closed to the public, there would be no direct impact to recreation from direct use of the site as a mitigation site. The area is used for wildlife and bird watching from adjacent parcels. During construction, wildlife and birds would likely be scared away from the site but once the mitigation site is established, it is anticipated that restoring a more natural habitat would provide benefits to a wider range of native and migratory birds.

Access to the site during construction might be needed through Camp Pollock and Discovery Park. If this were to occur, there would be a short-term significant and unavoidable impact to the recreational use of Camp Pollock and Discovery Park. Haul trucks would disrupt the noise, air pollution, odors, and visual resources for those wanting to recreate at Camp Pollock and Discovery Park. Because flaggers would be present when there is high construction traffic, this would be a less-than-significant impact with implementation of previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Repair Project-related Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4), to those using the Jedediah Smith Memorial Trail. However, the Proposed Action would result in a long-term less-than-significant impact on recreation after construction activities are complete.

### *Sacramento River Mitigation Site*

Use of nearby recreational facilities will not increase due to work associated with SRMS. It is not anticipated that recreational facilities would need to close due to the Proposed Action so there would be no impact on nearby recreational facilities. There are no major roads leading to the site or through the site that could encourage the public to use the site for recreation and there are "no trespassing" signs posted at the borders of the site. The SRMS will not be directly used

for recreation. Temporary disturbance of the riverbank during site construction may look displeasing for those boating or fishing on the Sacramento River or using the Hidden Harbor Marina. Because the effects would be localized and short-term in nature, impacts would be reduced to less than significant.

### ***Piezometer Network***

There would be no impact to use of nearby recreational facilities. No new recreational facilities are being built or expanded, so there would be no environmental impact from construction of new recreational facilities. Installation of the Piezometer Network could disturb bike trails and maintenance roads used for recreation on the tops of levees. Only one lane of paved bike trails would be closed at a time for equipment access during installation of the Piezometer Network. In addition, the infrastructure associated with the Piezometer Network is small enough that it would be installed in locations that would not disturb recreational activities. Because all permanent infrastructure associated with the Piezometers would be installed in locations that do not conflict with recreation and because the infrastructure is generally small, there would be a less-than-significant impact on recreation.

Some staging areas (Appendix B 2.2 Recreation) would be located in recreational areas. Long-term storage would be limited on recreational areas as much as feasible, but there is a chance that up to 0.3 acres of a recreational area could be used for up to 4 months. Because no full park closures are expected, long-term staging would be limited as much as possible and because construction activity would not be consistent at the staging areas, the short-term impacts to the recreational areas would be less than significant.

#### **4.2.2.2.3 Alternatives**

##### ***Alternative 3a***

Alternative 3a would only change the American River Contract 4A by replacing the waterside berm with a landside berm between the levee and the State Route 160 bridge piers. This would avoid temporary or permanent bike trail closures and would substantially reduce the impacts of the Proposed Action on the Jedediah Smith Memorial Trail, avoiding a short-term significant and unavoidable impact of the Proposed Action. All other project components would be the same as the Proposed Action.

##### ***Alternatives 3b, 3c, and 3d***

Alternatives 3b, 3c, and 3d would slightly change the American River Contract 4A bike trail re-route. The modifications to the bike re-route under these Alternatives would not substantially change the recreation effects of the Proposed Action.

##### ***Alternatives 4a and 4b (CEQA-Only)***

Alternatives 4a and 4b (CEQA-Only) would change the ARMS by constructing a berm to maintain a portion of the manmade pond. These alternatives would not affect existing recreation opportunities differently than the Proposed Action, and future recreational opportunities at the ARMS would be similarly limited by the presence of mitigation areas and sensitive species.

There would be no change in significance for recreation impacts compared to the Proposed Action.

### ***Alternatives 5a and 5c***

Alternative 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects for which environmental review is the responsibility of other agencies. Consequently, there would be no impacts to recreational resources for the SRMS project component for these alternatives, compared to a less-than-significant impact after mitigation for the Proposed Action.

### ***Alternative 5b***

Alternative 5b would include mitigation for Sacramento River impacts at the Watermark Farms site in Yolo County instead of at the SRMS. The Watermark Farms site is currently in private ownership and used for agriculture; modifications at the site would not affect existing recreation opportunities or require new recreational facilities. This alternative would have no impacts to recreational resources.

## **4.2.3 Public Utilities and Services**

### **4.2.3.1 Existing Conditions**

Section 2.3, “Public Utilities and Services,” in Appendix B provides details on service providers and existing utility facilities at the project sites.

### **4.2.3.2 Environmental Effects**

#### **4.2.3.2.1 No Action Alternative**

The project authorized in the ARCF GRR FEIS/EIR anticipated effects to public utilities and service systems. Public utilities and services systems analyzed in the ARCF GRR FEIS/EIR included water supply, storm water, wastewater, solid waste, electrical and natural gas, telephone and cable, and fire and police protection services.

Implementation of the No Action Alternative requires the relocation or alteration of water supply infrastructure at all ARCF GRR FEIS/EIR project sites. These relocations or alterations could result in minor service interruptions. In the Sacramento River portion of the ARCF GRR FEIS/EIR project, increased turbidity near the in-stream intake facilities, due to construction of bank protection sites and increased fugitive dust during slurry wall and slope reshaping work, could result in service disruptions while water quality is degraded. Service disruptions to stormwater systems could occur due to increased turbidity in runoff in all ARCF GRR FEIS/EIR project areas.

Temporary interruptions to wastewater, telephone, cable, electrical, and natural gas service are likely during temporary relocations of infrastructure, such as poles, lines, or pipes in all ARCF GRR FEIS/EIR project areas.

Construction under the No Action Alternative will result in the generation of project related waste and debris, some which would be directed to local or regional landfills. Construction and

operational activities associated with the No Action Alternative are unlikely to need increased fire or police protection services, such as additional officers and equipment. Impacts associated with traffic and vehicular access are assessed in Appendix B 2.1 Transportation and Circulation.

Evaluation of utility and service systems impacts was based on the duration and extent to which such services would be affected, as well as the ability of a service provider to continue to provide a level of service that could meet the needs of an affected community. Previously adopted mitigation measures identified in the ARCF GRR FEIS/EIR, are being implemented and all impacts to public utilities and service systems are expected to be less than significant with mitigation.

#### **4.2.3.2.2 Proposed Action**

A more detailed description of the impacts of the Proposed Action to public utilities and services is available in Appendix B Section 2.3 “Public Utilities and Services”.

The Proposed Action may require temporary interruptions of services during construction or relocation of utilities for some project components (MCP, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network). These potentially significant impacts to public utilities and service systems will be reduced through implementation of mitigation measure UTL-1.

##### **Mitigation Measure UTL-1: Verify Utility Locations, Coordinate with Affected Utility Owners/Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage**

The Project Partners will implement the measures listed below before construction begins, to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement the orderly relocation of utilities that need to be removed or relocated.
- Provide notification one week prior to any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities at the Proposed Action’s construction sites, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would be clearly marked at the construction sites (e.g., in the field), and on the construction specifications in advance of any earthmoving activities.
- Prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan would 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 would include worker education training in response to such situations. Stage utility relocations during Project construction to minimize interruptions in service.

- Communicate construction activities with first responders to avoid response delays due to construction detours.

**Timing:** Before construction

**Responsibility:** USACE

Other utilities and service systems impacts, including solid waste generation, water supply, or the need for new utilities or services, would either be less than significant or would have no impact.

Table 4.2.3-2 provides a summary of impacts for the various project components.

**Table 4.2.3-1. Summary of Public Utilities and Services Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effect Determination
2.3-a	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection, police protection, schools, park, other public facilities.	Less than Significant	Short-term and Minor effects that are Less than Significant.
2.3-b	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board	No Impact	No Impact
2.3-c	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.	Less than Significant with Mitigation Incorporated	Less than Significant with Mitigation Incorporated
2.3-d	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	Less than Significant	Short-term to Medium-Term and Minor effects that are Less than Significant
2.3-e	Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments	No Impact	No Impact
2.3-f	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.	Less than Significant	No Impact
2.3-g	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	No Impact	No Impact

Note: Impacts 2.3-b and 2.3-e were dismissed from detailed analysis in Appendix B 2.3.

**Table 4.2.3-2. Summary of Public Utilities and Services by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-a	MCP, American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Piezometer Network		Less than Significant	No Impact
2.3-a	SRMS, ARMS		Less than Significant	Short-term and Minor effects that are Less than Significant.
2.3-b	MCP, American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	Dismissed from further analysis	Dismissed from further analysis
2.3-c	MCP, American River Erosion Contract 4A, ARMS, SRMS	UTL-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant with Mitigation Incorporated
2.3-c	American River Erosion Contract 3B North and South, American River Erosion Contract 4B,	None Required	Less than Significant	Short-Term and Minor effects that are Less than Significant
2.3-c	Sacramento River Erosion Contract 3, Piezometer Network	UTL-1	Less than Significant with Mitigation Incorporated	No Impact
2.3-d	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento, Sacramento River Erosion Contract 3, SRMS, ARMS, Piezometer Network	None Required	Less than Significant	Short-term to Medium-Term and Minor effects that are Less than Significant
2.3-e	MCP, American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	Dismissed from further analysis	Dismissed from further analysis
2.3-f	MCP, American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	Less than Significant	No Impact
2.3-g	MCP, American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	No Impact	No Impact

### **4.2.3.2.3 Alternatives**

#### *Alternatives 3a, 3b, 3c, 3d, 4a (CEQA-Only), 4b (CEQA-Only), 5b*

All of these alternatives proposed would have a similar impact on public utilities and service systems compared to the Proposed Action, and the mitigation proposed for those alternatives is the same as the mitigation that would be implemented for the Proposed Action. A more detailed description of the impacts of the Alternatives is available in Appendix B, Section 2.3, “Public Utilities and Services.”

#### *Alternatives 5a and 5c*

These alternatives would have no impact on public utilities and services because they would replace the SRMS with purchase of mitigation credits and financial support of a project undergoing separate NEPA and CEQA review. A more detailed description of the impacts of the Alternatives is available in Appendix B, Section 2.3, “Public Utilities and Services.”

## **4.2.4 Land Use, Farmland, and Forestland**

### **4.2.4.1 Existing Conditions**

Land Use impacts to the different project areas covered in this document were considered in detail in the 2016 ARCF GRR FEIS/EIR. The City of Sacramento and surrounding districts are mostly urban and built-up areas, with reservations for recreational areas along the American and Sacramento Rivers, while more outlying surrounding areas consist of open land or farmland. The project areas are near light industrial uses, highways, residential areas, and/or recreational areas. The American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network are on the waterside of levees along either the American or Sacramento Rivers, located in or near recreational areas, and are separated from any residences or farmland by either the river, a highway, or the levee. The proposed SRMS is in the Sacramento-San Joaquin Delta (the Delta) and was formerly used by USACE as a dredge material placement site. It is on the waterside of a levee and shares a boundary with an agricultural field that is considered Prime or Unique Farmland. The property associated with Alternative 5c is on the left bank of the Sacramento River and is currently used for agricultural purposes. The MCP is in a mixed area of residential and light industrial business buildings. The MCDC was constructed prior to most of the building in this area.

### **4.2.4.2 Environmental Effects**

#### **4.2.4.2.1 No Action Alternative**

The projects covered by the 2016 ARCF GRR FEIS/EIR were considered to have a less than significant impact on Land Use and Farmland with implementation of previously adopted mitigation measures identified in section 3.3.6 of the 2016 ARCF GRR FEIS/EIR. While land conversion would be required as a part of the Project, these parcels would be acquired and negotiated at a fair market price. USACE and the NFS will identify lands to be used for Project purposes, in order to prevent land use impacts such as dividing established communities, removing Prime or Unique Farmland from production, or converting Forest lands.

#### 4.2.4.2.2 Proposed Action

**Table 4.2.4-1. Summary of Land Use, Farmland, and Forestland Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.4-a	Divide an established community.	Less than Significant	Short-term and Moderate effects that are Less than Significant.
2.4-b	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than Significant with Mitigation Incorporated	Short-term and Moderate with Mitigation Incorporated, Medium-Term to Long-term and Minor effects that are Less than Significant.
2.4-c	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural.	No Impact	No Impact
2.4-d	Conflict with existing zoning for agricultural use, or a Williamson Act contract.	Less than Significant	Short-term and Moderate effects that are Less than Significant
2.4-e	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))	No Impact	No Impact
2.4-f	Result in the loss of forest land or conversion of forest land to non-forest use	No Impact	No Impact
2.4-g	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use	No Impact	No Impact

**Table 4.2.4-2. Land Use Effects by Project Component**

Impact Number	Project Component	Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
2.4-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
2.4-a	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
2.4-a	SRMS, ARMS, Piezometer Network	N/A	No Impact	No Impact
2.4-b	MCP	N/A	No Impact	No Impact
2.4-b	American River Erosion Contract 4A	GEO-1, WQ-1	Less than Significant with Mitigation	Medium-Term to Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
2.4-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4B	VEG-1, VEG-2	Less than Significant with Mitigation	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
2.4-b	Sacramento River Erosion Contract 3, SRMS	N/A	Less than Significant	No Impact
2.4-b	ARMS	GEO-1; WQ-1	Less than Significant with Mitigation	No Impact
2.4-b	Piezometer Network	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant
2.4-c	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact
2.4-d	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, Piezometer Network	N/A	No Impact	No Impact
2.4-d	MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
2.4-e	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact
2.4-f	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact
2.4-g	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact

A more detailed description of the impacts of the Proposed Action to land use, farmland, and forestland and details of Mitigation Measures VEG-1 and VEG-2 is available in Appendix B Section 2.4 “Land Use and Prime and Unique Farmland”.

### ***American River Erosion Contract 3B North and South and American River Erosion Contract 4B***

Work would be done on an existing levee system so there would be a less than significant impact from the work on the connectivity of communities. American River Contract 3B has some work within areas designated as conservation areas in the 2023 American River Parkway Resource Management Plan. Because most conservation areas being impacted by the Proposed Action would become mitigation once work is complete, there would be a less than significant impact on these conservation areas.

### ***American River Erosion Contract 4A***

A part of American River Contract 4A footprint is within land designated as Farmland of Local Importance by the California Department of Conservation (DOC) and Prime Farmland if irrigated by U.S. Department of Agriculture, National Resources Conservation Service (NRCS). Because the area has an existing bike trail and because there is no plan to use the area for farmland, construction of the paved bike trail reroute in the area would have a less than significant impact. Implementing Mitigation Measures GEO-1 and WQ-1 would address impacts to waters and compliance with the American River Parkway Plan policy 4.4.

### ***Sacramento River Erosion Contract 3***

Work will be done on an existing levee system so there would be a less than significant impact from the work on the connectivity of communities.

### ***Magpie Creek Project***

The potential Land Use effects of the MCP are from the land taken to widen the canal and flatten the slopes of the canal. The property to be taken does not include any residences or create a barrier between the existing homes so the community in this area would not be isolated or divided.

Part of the staging areas and the location where the culvert would be installed under the Northern Sacramento Bike Trail are considered Farmland of Local Importance by the DOC and Prime Farmland if irrigated by NRCS. Staging areas would only be temporary and installation of the culvert would not change the land use from agricultural to a different use, so there would be a less than significant impact on Farmland. Also, the area is considered an urbanized area by the U.S. Census Bureau, so it is not considered farmland under the Farmland Policy Protection Act (FPPA). In addition, there is land within the area where the levee would be extended and widened that is Farmland of Local Importance by the DOC and Prime Farmland if irrigated by NRCS. Generally, this area is already a part of the levee system and would not be used for agriculture. As mentioned above this area is considered urbanized area by the U.S. Census Bureau, so it is not considered farmland under the FPPA. Because the area is generally not used for agriculture and not considered farmland under the FPPA, there would be a less than significant impact. Some staging areas are on land zoned for agricultural purposed. After use for

staging the land would be returned to its original condition, so the land use would not be changed to something other than agricultural due to the Proposed Action. There would be a less than significant impact on agricultural uses specified by zoning.

### ***Sacramento River Mitigation Site***

The SRMS, located in the Delta, has been used as a dredge waste dumping site for the USACE and shares a border with an agricultural field that is considered Unique farmland. After considering the type of work that would be performed and preventative measures that can be used there would be no Unique farmland taken out of production, eliminating any impacts to Land Use Less from construction of the Sacramento River Mitigation Site.

### ***American River Mitigation Site***

The ARMS is located on the American River, east of Discovery Park. The site includes a former gravel pit, and there is no farmland in the project footprint to impact. The Land Use effects for the American River Mitigation project component would be less than significant. The Proposed Action for the ARMS project component has been designed to minimize impacts on vegetation as much as possible to reduce impacts on native vegetation and wildlife corridors, consistent with American River Parkway Plan policies 3.1, 3.3, 4.10, 4.12, and 4.16. Additional policies specific to the ARMS (10.5 and 10.6) include acquiring the ARMS, enhancing fish and wildlife habitat, accommodating historical and cultural interpretive activities, establishing an unsurfaced trailhead and parking area, and allowing non-motorized boating as well as fishing in the pond for interpretive purposes at the discretion of the Park Manager Alignment with policies 10.5 and 10.6, which were not adopted for the purpose of avoiding or mitigating an environmental effect, is addressed in detail in Appendix B, Section 2.4, “Land Use and Prime and Unique Farmlands.”

The 2023 American River Parkway Resource Management Plan identifies the area around the man-made pond in the “naturalization” resource management category, which includes areas that were substantially altered in the past and should be modified in order to improve existing natural resource conditions. The types of activities that will be implemented to create the mitigation sites align with the types of activities listed under the naturalization category of the natural resource management activities listed in the 2023 American River Parkway Resource Management Plan. The activities associated with the ARMS would be consistent with the policies of the 2023 American River Parkway Resource Management Plan that are intended to avoid or mitigate environmental effects (Please refer to Appendix B, Section 2.4, “Land Use and Prime and Unique Farmlands,” for a detailed comparison), leading to an avoidance of significant impact with planned mitigation.

### ***Piezometer Network***

Generally, the Piezometer Network consists of small infrastructure improvements on portions of the project site for the ARCF 2016 Project as a whole. These minor improvements would have no effects related to land use.

#### **4.2.4.2.3 Alternatives**

##### *Alternatives 3a, 3b, 3c, 3d*

These Alternatives would change the locations of the improvements in the American River Erosion Contract 4A project component. All land use impacts would be the same as for the Proposed Action.

##### *Alternatives 4a and 4b (CEQA-Only)*

Alternatives 4a and 4b include designs for the American River Mitigation area that retain a 30 acre and a 20-acre portion of the existing manmade pond, respectively, while channels would be constructed on the eastern portion of the site. Because these alternatives retain a portion of the existing pond, they would be consistent with the American River Parkway Plan without requiring interpretation or approval by the County Board of Supervisors. However, there would be no change in impact conclusions for land use, farmland, or forestland compared to the Proposed Action.

##### *Alternatives 5a and 5c*

There would be no new construction or disturbance associated with Alternatives 5a and 5c, as existing mitigation banks would be used (and a project that would be separately addressed under CEQA and NEPA would be funded under Alternative 5c). Consequently, there would be no impacts to land use.

##### *Alternative 5b*

Alternative 5b includes a different site for Sacramento River Mitigation. Watermark Farm, located on the right bank of the Sacramento River between RM 50.5 and 51.25, would be used as the mitigation site for Sacramento River-related habitat impacts.

Alternative 5b would have a significant impact related to the conversion of agricultural land to non-agricultural use. Mitigation Measure AG-1 would be implemented to reduce this effect to less than significant.

#### **Mitigation Measure AG-1: Purchase Conservation Easements to Offset Conversion of Prime Farmland**

USACE will require purchase or establishment of property interests in agricultural land (i.e., conservation easements) requiring the preservation and/or enhancement of other land of similar agricultural quality and acreage, either directly or indirectly, to offset conversion of prime farmland to construct project facilities. These easements may include but are not limited to establishing agricultural conservation easements, paying in-lieu fees toward agricultural conservation easements, supporting agricultural land trusts, and participating in habitat conservation plans or natural community conservation plans that include conservation of agricultural lands. Conservation easements will be purchased at a 1:1 ratio. Where feasible, the agricultural conservation easements should be acquired in the county in which the conversion would take place, Yolo County. If there is not a sufficient supply of similar prime farmland where the conversions would occur, the agricultural conservation easements may be obtained in a different county. Where

conservation easements are established by USACE, they may be held by land trusts, local governments, or other appropriate agencies that are responsible for ensuring that these lands will be maintained in agricultural use. Where easements are considered for other resources such as terrestrial biological resources, purchase of easements will be coordinated where possible so that agricultural resources are also addressed.

**Responsibility:** USACE and NFS

**Timing:** Project Construction

Implementing Mitigation Measure AG-1 would reduce the impact by protecting a similar area of prime farmland in perpetuity. However, implementing Alternative 5b would nevertheless remove 340.3 acres of Important Farmland from agricultural use and the impact would remain significant and unavoidable.

## **4.2.5 Social Impacts to At-Risk Communities**

### **4.2.5.1 Existing Conditions**

Section 4.2.5 has been removed according to Executive Order 14148 of January 20, 2025, Initial Recissions of Harmful Executive Orders and Actions (90 FR 8237). Relevant analysis has been relocated to 4.2.6 “Socioeconomics” to fully analyze effects to the human environment, which is required by Section 101 of NEPA of 1969, as amended, (b)(2): assure for all Americans safe, healthful, productive, and esthetically and cultural pleasing surroundings, and Section 101 (b)(3): attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences. Impacts to socioeconomic and environmental resources are required by USACE policy Procedures for Implementing NEPA Engineering Regulation (ER) 200-2-2 (33 CFR Part 230), and Appendix C Environmental Evaluation and Compliance of ER 1105-2-100, Planning Guidance Notebook.

## **4.2.6 Socioeconomic Conditions**

### **4.2.6.1 Existing Conditions**

The environmental setting described in Section 3.18.1 of the ARCF GRR FEIS/EIR covering socioeconomic resources is generally applicable to the current conditions of population, housing, and local economy in Sacramento County. Appendix B 2.6 Socioeconomic Conditions contains the detailed analysis summarized below. This section also encompasses analysis from Section 2.5 Social Impacts to At-Risk Communities through demographic analysis, assessment of impacts, and public outreach.

At-risk communities were identified at the following project sites: American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, MCP, and the ARMS. No at-risk communities were located on or in the vicinity of the Sacramento River Erosion Contract 3, SRMS, Watermark, or Sunset Pumps project sites.

The population of Sacramento County is approximately 1.6 million people and contains the following jurisdictions: the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, Sacramento City and Unincorporated Sacramento County. Some well-known portions

of the Unincorporated County with a population and housing units are considered Census Designated Places (CDP). In 2021, the employment rate in Sacramento County was 58.2 percent with a median household income of \$80,063 (U.S. Census Bureau, 2021).

The population of the City of Sacramento is about 525,000 people and is divided into the following Community Plan Areas (CPA): Arden Arcade, Central City, East Sacramento, Fruitridge/Broadway, Land Park, North Natomas, North Sacramento, Pocket, South Area, and South Natomas. Arden Arcade is not within city limits and is considered a CPA Study Area for future incorporation. The employment rate in the city is 58 percent with a median household income of \$75,311. The unemployment rate is 7.5 percent (U.S. Census Bureau, 2021).

Most components of the Proposed Action are located within the City of Sacramento jurisdiction. Some of these projects extend into the Unincorporated area of Sacramento County, like American River Erosion Contract 3B and 4B, and the MCP. SRMS is solely located in the Unincorporated County area. Alternative sites for SRMS include Watermark Farms (Alternative 5b) located in Yolo County and Sunset Pumps (Alternative 5c) located in Butte County.

#### **4.2.6.2 Environmental Effects**

##### **4.2.6.2.1 No Action Alternative**

Under the CEQA No Project, the urbanized areas in the greater Sacramento area will continue to be at risk of flooding due to levee failure or overtopping. Flooding will directly impact the health and safety of the population, resulting in injuries or even fatalities in communities along the American and Sacramento Rivers. Many homes and businesses could be damaged or destroyed. Flooding would result in significant socioeconomic impacts, could be detrimental to Sacramento County residents and have local, State-wide, and potentially even national economic impacts. Known at-risk communities would remain at risk of damage from flooding, and subsequent clean-up and restoration activities. Vulnerable communities along the river would be more susceptible to long-term impacts, especially those in low-income households and the unhoused population.

Section 3.18.3 in the ARCF GRR FEIS/EIR describes the impacts to socioeconomic resources under the NEPA No Action Alternative. Under this Alternative, short-term socioeconomic impacts would occur for the duration of construction due to noise, increased traffic, road detours and temporary loss of use of recreational areas. These socioeconomic impacts, while unavoidable, would be less than significant, not requiring mitigation.

Project activities will occur immediately adjacent to established communities, and will require private property acquisition, primarily for staging areas and levee access. Property with residences and business would be avoided to the greatest extent practicable to prevent displacement of people and loss of housing inventory. All property negotiation would comply with the Uniform Relocation Assistance and Real Property Acquisition Act (Uniform Act). Levee improvement activities would not induce development in the floodplain because these lands and communities are protected by existing levees.

#### 4.2.6.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to socioeconomic conditions and at-risk communities, and details of Mitigation Measures SOCIO-1, SOCIO-2, SOCIO-3, and SOCIO-4 is available in Appendix B Section 2.6 “Socioeconomic Conditions”.

The Proposed Action would result in beneficial impacts, rather than disproportionate negative outcomes to Sacramento City and county. The Proposed Action would reduce the risk of flooding that could result in the catastrophic loss of lives, irreparable damage to homes and business, and would have compounding and cascading socioeconomic impacts. The long-term socioeconomic impacts include protection of the greater Sacramento area population, housing, and economic prosperity. Improvements would result in long-term flood risk reduction for surrounding at-risk communities. A summary of socioeconomic and social-impacts to at-risk communities is found in Table 4.2.6-2.

Short-term construction related socioeconomic impacts would be minor. Consequences include disruption to existing homes and businesses along the construction limits such as increased noise, dust, and traffic. There would be short-term recreational detours and impacts. Short-term benefits include increased construction-related job availability and potentially economic growth due to increased demand of construction goods and services.

For the majority of the levee improvements in the Proposed Action, construction is limited to erosion protection on existing levees. Therefore, no new lands are needed for construction, except for temporary staging areas of equipment and trailers. USACE and the NFS would prioritize using lands that are not developed to reduce the likelihood of displacing residents or removing housing from the existing inventory. Fair market value for the property, relocation benefits and compensation would be provided by the Uniform Act. Due to the nature and location of project activities, the displacement of population or housing would be less than significant.

USACE pedestrian surveys and baseline conditions from the CEQ’s Federal mapping tool have identified at-risk communities encumbered with socioeconomic and environmental burdens, within the project footprints of American River Erosion Contract 3B, 4A, and 4B, MCP, SREC3 and ARMS. These communities are primarily groups of unhoused people in and near the project sites, and also consist of impacts resulting from potential transportation disruptions to area schools within at-risk communities. The SRMS was not evaluated in detail because no at-risk communities were identified. The Piezometer Network was analyzed in conjunction with each spatially distinct project footprint.

**Table 4.2.6-1. Summary of Socioeconomic Conditions Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a	Induce substantial population growth in an area.	Less than Significant	Long-term and Moderate effects that are Less than Significant. Short-term and potentially beneficial effects that are Less than Significant.

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.6-b	Displace substantial numbers of people or housing.	Less than Significant	Short-term and Moderate effects that are Less than Significant with Mitigation. Long-term and Minor to Moderate effects that are Less than Significant with Mitigation
2.5-c	Result in substantial impacts to unhoused populations residing in the project area, through displacement or other means.	N/A	Short-term and Moderate effects that are Less than Significant with Mitigation
2.5-d	Interfere substantially with access to schools or other public institutions providing services to at-risk communities.	N/A	Short-term and Major effects that are Less than Significant with Mitigation
2.5-e	Result in substantial adverse impacts to Tribal communities.	N/A	No Impact
2.5-f	Result in a substantial impact to at-risk communities, particularly impacts related to the burdens identified by CEQ's Federal mapping tool.	N/A	Significant and Unavoidable

**Table 4.2.6-2. Socioeconomic Conditions Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a	MCP	N/A	Less than Significant	Long-term and Moderate effects that are Less than Significant
2.6-a	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3	N/A	Less than Significant	Short-term and potentially beneficial effects that are Less than Significant
2.6-a	SRMS, ARMS	N/A	No Impact	No Impact
2.6-b	SRMS	N/A	No Impact	No Impact
2.6-b	ARMS	SOCIO-1 (NEPA)	Less than Significant	Long-term and Negligible effects that are Less than Significant with Mitigation
2.6-b	MCP	SOCIO-1 (NEPA)	No Impact	Long-term and Minor to Moderate effects that are Less than Significant with Mitigation
2.6.b	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.5-c	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, ARMS	SOCIO-2 (Conduct Outreach with Local Advocacy Groups) SOCIO-3 (Prepare a Transient Population Safety Plan)	N/A	Short-term and Moderate effects that are Less than Significant with Mitigation
2.5-c	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B	SOCIO-4 (Consults with School Districts)	N/A	Short-term and Major effects that are Less than Significant with Mitigation
2.5-c	ARMS, American River Erosion Contract 4A	N/A	N/A	No Effect
2.5-d	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, ARMS	N/A	N/A	No Effect
2.5-e	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B	AIR-1 (Implement the Sacramento Metropolitan Air Quality Management District and Bay Area Air Quality Management District Basic Construction Emission Control Practices.), AIR-2 (Implement the Sacramento Metropolitan Air Quality Management District's Enhanced Fugitive PM Dust Control Practices), TRANS-1 (Prepare and Implement a Traffic Control and Road Maintenance Plan)	N/A	Significant and Unavoidable
2.5-e	American River Erosion Contract 4A	AIR-1 (Implement the Sacramento Metropolitan Air Quality Management District and Bay Area Air Quality Management District Basic Construction Emission Control Practices.), AIR-2 (Implement the Sacramento Metropolitan Air Quality Management District's Enhanced Fugitive PM Dust Control Practices), TRANS-1 (Prepare and Implement a Traffic Control and Road Maintenance Plan)	N/A	Short-term and Moderate effects that are Less than Significant with Mitigation
2.5-f	ARMS	N/A	N/A	Short-term and Minor effects that are Less than Significant

### **4.2.6.2.3 Alternatives**

#### ***Alternatives 3a, 3b, 3c, and 3d***

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A Project Component. All alternatives would be constrained within the construction buffer limits of the Proposed Action. None of these alternatives would increase effects to socioeconomic conditions or at-risk communities when compared to the Proposed Action. There is no existing housing in this area of the American River Parkway. While the area is heavily recreated by bicyclists, no permanent populations live in the area legally. Construction may have temporary effects on local business due to increased traffic and noise.

#### ***Alternatives 4a and 4b (CEQA-Only)***

Alternatives 4a and 4b would modify the design for the ARMS to incorporate either a 30-acre (Alternative 4a) or 20-acre (Alternative 4b) portion of the existing man-made pond. These adjustments to the design would not change the significance of any impacts on socioeconomic resources compared to the Proposed Action.

#### ***Alternative 5a***

Alternative 5a would eliminate the need to construct the SRMS, and would include purchasing the remaining, required mitigation credits from Service approved conservation banks, but all other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects as the Proposed Action. Purchasing credits would have no effect on socioeconomic resources or at-risk communities.

#### ***Alternative 5b***

Alternative 5b would complete the Sacramento River Mitigation needs by constructing a mitigation site at Watermark Farms restoring 227 acres of riverine and floodplain habitat, but all other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects as the Proposed Action. Similar to the Proposed Action, construction of the mitigation site would not induce population growth, nor would the site displace people or housing. The land is actively farmed and there are no existing residences. Alternative 5c would have less than significant effects on socioeconomic resources or at-risk communities.

#### ***Alternative 5c***

Alternative 5c includes a combination of purchasing Delta Smelt conservation bank credits, providing funding for the Sunset Pumps rock weir removal project, and assisting in funding the riparian mitigation requirements for the Sunset Pumps project. There would be no effect on socioeconomic resources or at-risk communities by purchasing credits. The effects of the Sunset Pumps project would be covered under NEPA and CEQA documentation written by Project Proponents, including DWR, USFWS, and BOR.

## **4.3 Physical Resources**

### **4.3.1 Aesthetics and Visual Resources**

#### **4.3.1.1 Existing Conditions**

The American River Parkway area, which includes American River Erosion Contract 3B North and South, American River Erosion Contract 4A and American River Erosion Contract 4B, has a highly valued natural setting and feeling of serenity in the midst of a developed urban area. The ARMS is also within the American River Parkway and consists of a man-made pond surrounded by grassy areas with riparian forest in the background.

The Sacramento River in the vicinity of the Sacramento River Erosion improvements is a narrow riparian corridor. The SRMS is also along the Sacramento River, but is located in the Delta, and has views consisting of a mix of riparian forest, open grassy areas with disbursed shrubs, dispersed early successional vegetation areas, interior sandy flats, and sandy beaches.

The project site for the MCP has views of open space with some small ranchettes and light industrial uses. The visual character of local parks being used as staging area or for access is generally high. Overall, these parks have many trees and grassy fields that bring a green and lush view and block out the surrounding suburban development. A more detailed description of the visual character of the sites, including site photos, is available in Appendix B Section 3.1, “Aesthetics and Visual Resources.”

The main viewer group that would be affected by project improvements consists of recreationalists using the rivers and parks for recreation. In addition, people traveling across bridges and State Route (SR) 160 would be affected viewers.

SR 160 is designated as a scenic highway on the left bank of the Sacramento River near the SRMS. This designated scenic highway has views across the Sacramento River to the SRMS, particularly trees and riparian vegetation along the southern boundary of the site. In addition, the City of Sacramento General Plan identifies the Sacramento River and American River as important visual resources that need to be protected.

#### **4.3.1.2 Environmental Effects**

##### **4.3.1.2.1 No Action Alternative**

Construction activities will result in short-term significant and unavoidable direct impacts on the visual tranquility of the American River Parkway due to construction equipment regularly in the American River Parkway over 10 years. Loss of vegetation along the American River, due to removal and construction of levee improvements, will result in significant and unavoidable short-term effects on visual resources of the mature vegetation, but a minor long-term impact on visual resources because of trees left onsite and the addition of onsite mitigation plantings. Similarly, there will be a short-term unavoidable direct impact on visual resources along the Sacramento River due to construction equipment on the levees that could be visible to residents and boaters. In addition, there will be a short-term significant impact on visual resources due to removal of vegetation along the Sacramento River. Since proposed work for MCP will only be one season, and since MCP is not located in an area used for recreation or where viewer

sensitivity is high, the flood risk reduction work on MCP will create short-term and less than significant impacts on visual resources.

The long-term significant impact on visual resources would be reduced to a short-term significant impact level with implementation of mitigation measures listed in Section 3.15.6 of the ARCF GRR FEIS/EIR since vegetation would grow back and create a more natural view.

A more detailed description of visual impacts of the Proposed Action and details of Mitigation Measures VIS-1, VEG-1 and VEG-2 are available in Appendix B Section 3.1, “Aesthetics and Visual Resources.”

#### 4.3.1.2.2 Proposed Action

**Table 4.3.1-1. Summary of Aesthetic/Visual Resources**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a	Have a substantial adverse effect on a scenic vista.	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable.
3.1-b	Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	Short-term Significant and Unavoidable; Long-term Less Than Significant.	No Impact.
3.1-c	Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
3.1-d	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	Less than Significant with Mitigation	Short-term and Long-term effects that are Less Than Significant with Mitigation Incorporated

**Table 4.3.1-2. Aesthetics/Visual Resources Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a	MCP	N/A	No Impact	No Impact
3.1-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Mitigation, American River Mitigation	VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation.	Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less than Significant with Mitigation.
3.1-a	American River Erosion Contract 4A	N/A	Short-term and Long-term Less Than Significant	Short-term and Long-term Minor to Moderate effects that are Less Than Significant
3.1-a	Sacramento River Erosion Contract 3	N/A	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a	Piezometer Network	N/A	Short- and Long-term Less than Significant	Short- and Long-term Minor Impact that are Less than Significant
3.1-b	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS	N/A	No Impact	No Effect
3.1-b	SRMS	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant.	No Effect
3.1-b	Piezometer Network	N/A	Less than Significant	No Effect
3.1-c	American River Erosion Contract 3B North and South	VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation.	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation.
3.1-c	American River Erosion Contract 4B	VEG-2	Short-term and Long-term Significant and Unavoidable	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation.
3.1-c	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
3.1-c	Sacramento River Erosion Contract 3	VEG-2	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
3.1-c	MCP	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
3.1-c	ARMS	VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant	Short-term Significant and Unavoidable; Long-term and Minor effects that are Less than Significant
3.1-c	SRMS	VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant.
3.1-c	Piezometer Network	N/A	Less Than Significant	Short-term Moderate Impact that is Less than Significant and Long-Term Minor Impact that is Less than Significant.
3.1-d	American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS	VIS-1, VIS-2	Less Than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less Than Significant with Mitigation Incorporated
3.1-d	Piezometer Network		Less than Significant	Short-term and Long-term Minor Impacts that are Less than Significant

### ***Magpie Creek Project***

Lighting associated with construction and staging could create new temporary light sources at the project site, causing short-term significant impact on visual resources for sensitive receptors. Mitigation Measure VIS-1 and VIS-2 would be implemented to reduce the impact to less than significant. The area around Magpie Creek where planned flood risk reduction features would be installed is zoned light industrial and light industrial zoning does not contain restrictions related to aesthetics. There would be less than significant CEQA impacts from construction and from the flood risk reduction features. Because the area is industrial in general there would be a less than significant NEPA impact from vegetation removal and construction of the flood risk reduction features. The northern staging areas is within the Dry Creek Parkway and the Walter S Ueda Parkway. In addition, work would impact the Sacramento Northern Bike Trail. The visual disruptions for all of the staging areas would be limited to a small portion of these recreational areas and would only occur for 2 years. Because these impact on visual resources would be limited to a small part of the recreational resources and because the visual impact would be limited to 2 years, the impact to visual resources within these recreation areas would be less than significant.

### ***American River Erosion Contract 3B North and South***

Lighting associated with construction and staging could create new temporary light sources at the project site, causing short-term significant impact on visual resources for sensitive receptors. Mitigation Measure VIS-1 and VIS-2 would be implemented to reduce the impact to less than significant. Construction activities, ground disturbance, and tree removal would temporarily change the scenic views of the American River area. Mitigation Measure VEG-2 would decrease the effect of ground disturbance and tree removal over time, the maturation of the riparian vegetation will return the visual quality of the project area to pre-construction conditions. The removal of trees would have a short-term significant unavoidable impact on the scenic views that would be reduced to less than significant over time. View and tranquility of parks and other recreational areas within the project site would also be impacted by the Proposed Action in the short-term. Some trees may need to be removed from parks to allow use of parks for construction purposes. Tree removal and construction use of the parks would create a short-term significant impact to the viewshed of these parks.

### ***American River Erosion Contract 4A***

Like American River Contract 3B, a significant impact on visual resources caused by construction lighting would be reduced to a less-than-significant level by implementing Mitigation Measures VIS-1 and VIS-2. The area impacted by the American River Contract 4A flood is reduction work is only 1 acre, and the flood risk reduction work is along bridges and an existing levee. Because of the existing visual character of the site, building a berm would be a less-than-significant impact on the scenic and natural views of the area. The proposed reroute of the Jedediah Smith Memorial Trail would also create a less than significant impact on the views of the area because the American River Parkway area already contains paved bike trails and the views from the new route would be similar to those from the existing trail.

### ***American River Erosion Contract 4B***

Like American River Erosion Contract 3B, a significant impact on visual resources caused by construction lighting would be reduced to a less-than-significant level by implementing Mitigation Measures VIS-1 and VIS-2. Also, like American River Erosion Contract 3B, the view and tranquility of parks and other recreational areas within the project site would also be impacted by the Proposed Action in the short-term. Even though there will be an attempt to save every native tree impacted at the American River Erosion Contract 4B site, the possible need to remove heritage oaks would create long-term significant and unavoidable impacts.

### ***Sacramento River Erosion Contract 3***

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measure VIS-1 and VIS-2 is implemented. In addition, construction activities, ground disturbance and tree removal would permanently change the scenic views of the Sacramento River. Since less than 25% of the riverbank would be replanted the impact to views of the Sacramento River would be short-term and long-term significant and unavoidable.

### ***American River Mitigation Site***

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measures VIS-1 and VIS-2 are implemented. Improvements at the ARMS would change the topography of the site from a man-made pond to sloped topography and drainages with inundated channels connecting back to the American River. Ground disturbance and vegetation removal conducted for the ARMS project would disrupt the scenic views of the American River area. As vegetation matures and returns visual quality to the site, the short-term significant unavoidable impact to the scenic views would reduce to a less than significant impact. In addition, the views and tranquility of the Jedediah Smith Memorial Trail, Camp Pollock, and Discovery Park would also have short-term significant unavoidable impacts from implementing the Proposed Action.

### ***Sacramento River Mitigation Site***

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measure VIS-1 and VIS-2 is implemented. Work along the riverbank for the SRMS would be visible from a portion of SR 160 that is designated a scenic highway. There would be a short-term significant and unavoidable CEQA impact to views along SR 160 during construction and until vegetation matures enough to return the visual quality to the site. Once the vegetation has established there would be a long-term less than significant CEQA impact to views along SR 160. Work along the riverbank would also disrupt the scenic views of the Sacramento River until vegetation matures, causing a short-term significant unavoidable impact and a long-term less than significant impact on the scenic views of the Sacramento River.

### ***Piezometer Network***

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measure VIS-1 and VIS-2 is

implemented. The infrastructure associated with the Piezometer Network is generally small and would be spread apart enough that the infrastructure would not be noticeable. This project component would therefore have a less than significant impact on the scenic vistas of the Sacramento and American Rivers. The views of the drill rigs would be temporary at specific locations along the Sacramento and American Rivers, so there would be a less than significant impact to the scenic vistas of the Sacramento and American Rivers. Most of the staging areas would not be visible along the Sacramento and American Rivers. The staging areas that would be visible along the rivers would not be used for more than 4 months. There would be a less than significant impact to the vistas of the Sacramento and American River. In addition, because the infrastructure would be spread out, there should not be new sources of glare so there would be a less than significant impact on glares.

#### **4.3.1.2.3 Alternatives**

A more detailed description of visual impacts of the Alternatives is available in Appendix B Section 3.1, "Aesthetics and Visual Resources."

##### ***Alternatives 3a, 3b, 3c, and 3d***

Alternatives 3a, 3b, 3c, and 3d would involve changes to the berm location and bike trail alignment on American River Erosion Contract 4A, with similar aesthetics impacts to the Proposed Action.

##### ***Alternatives 4a and 4b (CEQA-Only)***

CEQA-Only Alternatives 4a and 4b would have reduced impacts on visual resources because these alternatives would retain a portion of the existing manmade pond, maintaining an artificial water feature in the visual character of this site. Visual resources impacts would nevertheless remain significant. Other impacts would be similar to the Proposed Action.

##### ***Alternatives 5a and 5c***

Alternative 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects already being covered under NEPA/CEQA from other agencies. Consequently, there would be no new additional impacts to visual resources.

##### ***Alternative 5b***

Alternative 5b would use a different site for Sacramento River Mitigation, the Watermark Farm site. This alternative would permanently change the views from agricultural and residential views to a channel with a riparian forest. Overall, the views from the road and the views from the Sacramento River would become more natural once work is complete and once vegetation establishes, creating a long-term beneficial impact on visual resources. Because the area would initially look disturbed and viewer sensitivity is high along the Sacramento River, there would be short-term significant unavoidable impacts on visual resources. Since work would occur over a 3-year period and since viewer sensitivity is high on the Sacramento River, the view of construction activities and the view of disturbed area would be a short-term significant unavoidable impact to visual resources.

## **4.3.2 Geologic Resources**

### **4.3.2.1 Existing Conditions/Affected Environment**

#### **4.3.2.1.1 Geology, Seismicity, and Soils**

The existing conditions and affected environment related to Geology, Seismicity, and Soils is consistent with what is provided in the ARCF GRR FEIS/EIR.

#### **4.3.2.1.2 Mineral Resources**

The Study Area lies within the Greater Sacramento Area Production-Consumption Region for Portland concrete aggregate as well as the Portland Cement Concrete-grade Aggregate and Kaolin Clay Resource Area (CGS 1999 and 2018). The Improvement Areas are not located within known areas of significant mineral deposits (Sacramento County 2011: Figure 8).

#### **4.3.2.1.3 Paleontological Resources**

Paleontological remains may be found in numerous types of rock formations. However, vertebrate fossils are most commonly recovered from sedimentary formations, as well as from a few igneous formations where sedimentary deposits are interbedded. The MCP is underlain by the Riverbank Formation, which is the most extensive Quaternary unit in the Sacramento area (Wagner et al. 1981). The Pleistocene-age Riverbank Formation consists of weathered gravel, sand, and silt, and it is the only fossil bearing formation located within Sacramento County.

### **4.3.2.2 Environmental Effects**

#### **4.3.2.2.1 No Action Alternative**

Construction of the No Action Alternative will include substantial construction and earth-moving activities over large areas that will result in temporary disturbance of soil during the construction period and could expose these disturbed areas to substantial erosion during rainstorms following construction if not properly restored. This potentially significant impact was reduced to a less-than-significant impact with mitigation (consolidated in this SEIS/SEIR as Mitigation Measure GEO-1).

The No Action Alternative will not substantially alter the composition of the levees or foundation soils or change their susceptibility to liquefaction. Additionally, the potential for failure or significant damage to project structures from seismic issues was determined to be low.

#### **4.3.2.2.2 Proposed Action**

A more detailed description of the impacts of the Proposed Action to geologic resources and details of Mitigation Measures GEO-1 and GEO-2 are available in Appendix B Section 3.2 “Geology”.

There are no unique geologic features in the project areas with exception of the River Bank Formation which is known to contain fossils and could be encountered on the MCP site. With best management practices in the new Mitigation Measure GEO-2 the project would not damage unique paleontological features.

**Table 4.3.2-1. Summary of Geologic Resources Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.2-a	Cause Exposure to seismic hazards	No Impact	No Impact
3.2-b	Cause substantial soil erosion or the loss of topsoil.	Less than Significant with Mitigation Incorporated	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
3.2-c and 3.2-d	Cause exposure to unstable soils	No Impact	No Impact
3.2-e	Place wastewater systems in unstable soils	No Impact	No Impact
3.2-f	Damage a unique paleontological resource or site or unique geologic feature.	Less than Significant with Mitigation Incorporated.	Negligible effects that are Less than Significant with Mitigation Incorporated.
3.2-g	Reduce availability of a known mineral resource	No Impact	No Impact

**Table 4.3.2-2. Geologic Resources Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.2-a	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	N/A	Dismissed from further analysis	Dismissed from further analysis
3.2-b	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	GEO-1	Less than Significant with Mitigation	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
3.2-c and 3.2-d	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	N/A	Dismissed from further analysis	Dismissed from further analysis
3.2-e	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	N/A	Dismissed from further analysis	Dismissed from further analysis
3.2-f	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network	N/A	Less than Significant	Negligible effects that are Less than Significant
3.2-f	MCP	GEO-2	Less than Significant with Mitigation	Negligible effects that are Less than Significant with Mitigation incorporated
3.2-g	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	N/A	Dismissed from further analysis	Dismissed from further analysis

*American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek Project, Sacramento River Mitigation, American River Mitigation*

The Geological Resources discussion in Section 3.2 of the 2016 ARCF GRR FEIS/EIR addresses geologic resources impacts for the American River, Sacramento River, and Magpie Creek portions of the project. The American River and Sacramento River project sites are not near paleontologically sensitive materials, so there would be no impact related to paleontological resources. The MCP improvement area is located on the paleontologically sensitive Riverbank Formation; however, the extent of disturbance of the Riverbank Formation would be small, and the potential to encounter unique paleontological resources would be low.

Construction could result in the temporary and short-term disturbance of soil and could expose disturbed areas if a storm event were to occur during project implementation. 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 occur. In addition, soil disturbance during summer could result in substantial loss of topsoil because of wind erosion. The Proposed Action would result in a potentially significant impact due to the temporary, short-term construction impact. Mitigation Measure GEO-1, which has been previously adopted, would be applied to reduce this impact to a less-than-significant level. For the MCP, there is the potential to encounter unique paleontological resources due to the presence of the Riverbank Formation in the project site. This potentially significant impact would be reduced to a less-than-significant level with new Mitigation Measure GEO-2.

#### **4.3.2.2.3 Alternatives**

*Alternatives 3a, 3b, 3c, 3d, 4a (CEQA-Only), 4b (CEQA-Only), 5b*

A more detailed description of the impacts of the Alternatives on geology resources is available in Appendix B 3.2, “Geologic Resources.” None of these Alternatives would change any of the construction impacts associated with geologic resources, mineral resources, or paleontological resources.

*Alternatives 5a and 5c*

These alternatives would replace construction of the SRMS with purchase of mitigation credits and/or financial support for the Sunset Pumps project. These alternatives would have no impact on geologic resources.

### **4.3.3 Hydraulics and Hydrology**

#### **4.3.3.1 Existing Conditions**

Section 3.4.1 of the 2016 ARCF GRR FEIS/EIR describes the hydrologic setting of the project area, mainly focusing on the Sacramento and American Rivers, which have been significantly altered by human activities, including hydraulic and dredge mining for gold, building of levees for land reclamation and flood control, bank protection, land use changes, reservoir construction, water export projects, and dredging of alluvium for navigation and levee maintenance purposes.

Surface waters in the project area include the MCDC, Don Julio Creek, Steelhead Creek /Natomas East Main Drainage Canal (NEMDC), American River, man-made pond, Sacramento River, Cache Creek, Steamboat Slough, the Sacramento River Deep Water Ship Channel, and wetlands. All the individual projects are located in designated flood hazard areas or in areas with reduced flood risk due to the presence of levees, according to Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer geospatial database. The project area overlies the North American and South American groundwater sub-basins, and the Sacramento Valley – Solano groundwater sub-basin.

### **4.3.3.2 Environmental Effects**

#### **4.3.3.2.1 No Action Alternative**

Under the NEPA No Action Alternative, the remaining work on MCP, Lower American River, and Sacramento River authorized under the ARCF 2016 Project will be constructed. This work includes fix-in-place levee improvements which would improve flow conveyance and improve the flood risk reduction system. Since flows are not expected to be adversely altered, the effects to hydrology and hydraulics described in the GRR FEIS/EIR are found to be less than significant, and no mitigation would be required.

The SRMS and ARMS will not be constructed, and the existing hydrology and hydraulic conditions would continue. As a part of the 2016 ARCF GRR Project, on-site mitigation such as planting berms will be constructed along the riverbanks. In addition, off-site mitigation sites that have already been discussed in previous NEPA documents such as Rossmoor, Rio Americano, and the Glenn Hall mitigation site would be construction as well. This mitigation strategy will not alter river hydrology or hydraulics.

However, portions of the American and Sacramento River levee system have been recently identified as highly vulnerable to erosion. New hydraulic modeling along the American River discovered the potential for a levee breach due to adverse conditions during high flows. Design Refinements including levee protection and the new seepage berm at American River Erosion Contract 4A will not be constructed. The greater Sacramento area will remain susceptible to the risk of flooding. North Sacramento will remain vulnerable to flooding as the new levee will not be constructed on Magpie Creek east of Raley Boulevard nor will the canal improvements. Magpie Creek will continue to lack the channel capacity and levee infrastructure to contain a 1 in 200-year flood event. Effects to hydraulics will be significant.

#### **4.3.3.2.2 Proposed Action**

A more detailed description of the impacts of the Proposed Action to hydraulics and hydrology is available in Appendix B Section 3.3 “Hydraulics and Hydrology”.

Hydraulic analyses were conducted for Magpie Creek, the American River, and the Sacramento River during design refinements for the Proposed Action and alternatives. The effects of the Proposed Action on the water surface elevations were evaluated using the Hydrologic Engineering Center's River Analysis System (HEC-RAS) computer software. HEC-RAS performs one-dimensional steady flow, one- and two-dimensional unsteady flow calculations, sediment transport/mobile bed calculations, and water temperature/water quality modeling. The

development and use of this hydraulic modeling is described in Section 3.4.2 of the 2016 ARCF GRR FEIS/EIR.

Cumulative Hydraulic Impacts Analysis on the Probability of Failure of Sacramento River Levees (MFR ARCF 2016, Cumulative Hydraulic Impacts Analysis on the Probability of Failure of Sacramento River Levees, 21 February 2023) was presented in a Memorandum of Record dated 21 Feb 2023, which was prepared to determine cumulative stage impacts to the American and Sacramento Rivers Erosion Improvement designs. The results of the analysis show that the hydraulic conditions without Sacramento Weir widening (future without ARCF 2016 Project) or the hydraulic conditions with Sacramento Weir widening and ECMs (future with ARCF implemented) do not provide significant changes in water surface elevations along the Sacramento River. The cumulative hydraulic impacts for the current representation of the “With ARCF Project condition” (which includes the Proposed Action) do not result in an increase in Annual Overtopping potential at any of the index locations compared to the baseline condition. When considering geotechnical failures, the Annual Erosion Potential (AEP) at all index locations was reduced by the levee improvements proposed under the WRDA 2016, ARCF 2016 Project. The changes in conveyance capacity resulting from different designs do not have a significant impact on the AEP compared to the reduction provided by the system-wide levee improvements.

**Table 4.3.3-1. Summary of Hydraulics and Hydrology Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.3-a	Decrease groundwater supplies or interfere with groundwater recharge	Less than Significant	Long-term Negligible effects that are Less than Significant
3.3-b	Alter existing drainage pattern of the site through the alteration of a stream or river, or addition of impervious surfaces, in a manner which would: 1) result in a substantial erosion or siltation on- or off-site; 2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 3) 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; or 4) impede or redirect flood flows;	Significant and unavoidable	Significant and unavoidable

**Table 4.3.3-2. Hydraulics and Hydrology Effects by Project Component**

Impact Number	Location	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.3-a	MCP	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant
3.3-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3	N/A	No Impact	No Impact
3.3-a	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant

Impact Number	Location	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.3-a	ARMS, SRMS	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant; Long-term and Beneficial effects
3.3-a	Piezometer Network	N/A	No Impact	No Impact
3.3-b	MCP	Mitigation Measures HYDRO-1: Obtain flowage easements on adjacent floodplain.	Significant and unavoidable	Significant and unavoidable
3.3-b	American River Erosion Contract 3B and 4B, American River Erosion Contract 4A Sacramento River Erosion Contract 3	N/A	Less than Significant	Long-term and Negligible (AR 4A); Short-term and Negligible (AR 3B); and Long-term and Minor (SR 3) effects that are Less than Significant
3.3-b	ARMS, SRMS	N/A	Less than Significant	Long-term and Beneficial
3.3-b	Piezometer Network	N/A	No Impact	No Impact
3.3-c	All Contracts	N/a	Dismissed from further analysis	Dismissed from further analysis

The Proposed Action would impact the hydrology and hydraulics of the project components in various ways that are worth highlighting in this section. Magpie Creek components would have a significant and unavoidable impact on drainage patterns due to potential downstream stage increases of up to 0.3 feet. Magpie Creek components would have a less than significant impact on groundwater supplies and recharge. The channel realignment east of Raley Boulevard could interfere with groundwater recharge in that area and the realigned and widened channel between Raley Boulevard and Vinci Avenue would not accommodate the design flow of 3,169 cfs and therefore, would have a potentially significant impact on the existing drainage pattern of the site. Implementation of Mitigation Measure HYDRO-1 would reduce impacts through establishment of flowage easements and assessment and potential compensation for downstream impacts, but not to a less-than-significant level.

The American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3 components would have no impact on groundwater supplies and recharge and a less than significant impact on drainage patterns. The American River Erosion Contract 3B North and South, and American River Erosion Contract 4B design refinements include construction of launchable rock toe and tiebacks that would narrow the channel and raise the river stage. Model results indicate these project components do not increase the risk of overtopping of the North and South Levee Systems. Therefore, the impact would be less than significant. The Sacramento River Erosion Contract 3 components include a launchable rock toe, which would supplement the standard rock revetment with an additional 10 feet of rock at the revetment base. Results of the modeling indicate the rock revetment design would lead to stage increases of less than 0.2 ft and would not increase the risk of overtopping, thereby resulting in a less than impact to hydrology and hydraulics.

The American River Erosion Contract 4A, Sacramento River Mitigation Site and American River Mitigation Site components would have a less than significant impact on hydrology and hydraulics. The American River Erosion Contract 4A components consist of an armored berm, paving and regrading the Jedediah Smith Memorial Bike Trail, and use of staging areas. All of which would be designed so there would be a less than significant impact on drainage patterns. The design of the American River Mitigation Site would incorporate erosion control measures, accommodate natural sedimentation processes, and ensure that flood flows would not be impeded or redirected such that they would contribute to flooding. Finally, the Sacramento River Mitigation Site's conceptual design involve breaching the levee on the western half and excavation of one or more channels to reconnect the floodplain to the adjacent waterbodies. This would provide additional flood storage at the site resulting in lower river stages and erosion potential.

#### **4.3.3.2.3 Alternatives**

##### *Alternatives 3a, 3b, 3c, and 3d*

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A Project Component. These alternatives would have no effect on groundwater supplies or interfere substantially with groundwater recharge (Criteria 3.3-a). Similar to the Proposed Action, there would be less-than-significant impacts related to altered drainage due to construction of the landside berm that impacts an existing wetland (Criteria 3.3-b).

##### *Alternatives 4a and 4b (CEQA-Only)*

Alternatives 4a and 4b would retain a portion of the man-made pond at the ARMS. The retained pond would have similar less-than-significant adverse effects related to groundwater infiltration and drainage as the Proposed Action.

##### *Alternatives 5a, 5b, and 5c*

Alternative 5a would have no impact on groundwater supply or recharge, or existing drainage patterns. Alternative 5b would have beneficial effects (NEPA) as the setback levee opens the natural floodplain reconnecting the hydrology (Adverse effects would be less than significant for CEQA purposes). Alternative 5c would have no impact on groundwater supplies or drainage patterns.

### **4.3.4 Water Quality**

#### **4.3.4.1 Existing Conditions**

Section 3.5 of the ARCF GRR FEIS/EIR describes existing conditions of the American and Sacramento Rivers within the project area. Water temperature is a critical parameter for aquatic life, and the American and Sacramento Rivers have cool water temperatures. The 2019 Central Valley Water Quality Control Board Basin Plan (CVRWQCB 2019) established dissolved oxygen and water temperature criteria for waters with cold- and warm-freshwater habitat. The Basin Plan states that temperatures cannot deviate more than 5°F from ambient river temperatures. Dissolved oxygen is inversely related to temperature, higher temperatures decrease the amount of oxygen that the water can carry. Sediment is considered a pollutant by the

CVRWQCB. Suspended sediment may transport certain contaminants, smother benthic organisms, and have negative aesthetic impacts to surface waters. Methylmercury is a highly toxic form of mercury which bioaccumulates in aquatic organisms and is formed by bacteria in wetlands, lakes, and stream beds. To minimize mercury and methylmercury discharges to Delta waterways, the Basin Plan requires that Clean Water Act 401 Water Quality Certifications include management practices to minimize the extent that sediment erodes into waterways.

#### **4.3.4.2 Environmental Effects**

##### **4.3.4.2.1 No Action Alternative**

Under the NEPA No Action Alternative, the remaining work on Magpie Creek, Lower American River, and Sacramento River described in the ARCF GRR FEIS/EIR will be constructed. The MCP consists of a levee raise and widening, a landside maintenance road, a new levee, culvert installation, and floodplain acquisition. With the exception of the floodplain acquisition, the Magpie Creek work is to occur west of Raley Blvd. The No Action Alternative does not include in-water work around Magpie Creek and effects to water quality were found to be less than significant.

The ARCF GRR FEIS/EIR found that construction of the launchable rock trenches on the American River will not impact water quality because this work would occur outside of the wetted channel. Construction of standard bank protection along the American and Sacramento Rivers will involve placement of underwater rock revetment along the riverbanks and could result in turbidity exceedances caused by sediment plumes, resulting in a significant but temporary impact. Equipment operation on land could result in stormwater runoff of soil from access and staging areas on the American River, while barge movement and anchoring could increase turbidity levels on the Sacramento River.

Water temperature effects on the American and Sacramento Rivers were found to be less than significant because removed vegetation will primarily consist of shrubs and grasses which do not contribute significantly to shade, and trees would be protected in place. Additionally, the bank protection sites will include riparian plantings, which would contribute to shade long-term. Therefore, water quality effects are mainly temporary and during construction. With the avoidance and minimization measures discussed in the ARCF GRR FEIS/EIR Section 3.5.6, which include BMPs and water quality sampling, effects to water quality will be reduced to less than significant.

However, since the analysis in the ARCF GRR FEIS/EIR, additional analysis determined that design refinements described under the Proposed Action were needed to better meet the flood risk management goals of the ARCF 2016 Project. Without these additional improvements, portions of the American and Sacramento River levee system will be vulnerable to erosion, and Magpie Creek will not have capacity to convey a 200-year flood event. This could leave portions of the project area vulnerable to flooding and the adverse water quality impacts related to that flooding. The effects to water conveyance capacity under the No Action Alternative will be significant.

#### 4.3.4.2.2 Proposed Action

**Table 4.3.4-1. Summary of Water Quality Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a	Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality	Less than Significant with Mitigation Incorporated	Long-term and Moderate with Mitigation effects that are Less than Significant with Mitigation Incorporated.
3.4-b	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	Short-Term Significant and Unavoidable, Long-Term Less than Significant with Mitigation	Short-Term Significant and Unavoidable; Long-Term and Minor effects that are Less than Significant

**Table 4.3.4-2. Water Quality Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and Piezometer Network	GEO-1, WATERS-1, and WQ-1	Less than Significant with Mitigation	Long-term and Moderate with Mitigation; effects are Less than Significant with Mitigation Incorporated
3.4-b	MCP	GEO-1, HAZ-1, WATERS-1, and WQ-1	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-Term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant with Mitigation
3.4-b	American River Erosion Contract 3B North and South, and American River Erosion Contract 4B	N/A	Short-term and Long-term Less than Significant	Short-term and Long-term Less than Significant
3.4-b	American River Erosion Contract 4A		Short-term and Long-term Less than Significant	Short-term and Long-term than Significant
3.4-b	Sacramento River Erosion Contract 3	N/A	Short-term and Long-term Less than Significant	Short-term and Long-term Less than Significant
3.5-b	ARMS	GEO-1, and WATERS-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation	Short-term Significant and Unavoidable; Long-term and Negligible effects that are Less than Significant with Mitigation
3.5-b	SRMS	GEO-1	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term Less than Significant
3.4-a and 3.4-b	Piezometer Network	N/A	No Impact	No Impact

A more detailed description of the impacts of the Proposed Action to water quality and details of Mitigation Measures GEO-1, HAZ-1, WATERS-1, and WQ-1 are available in Appendix B Section 3.4 “Water Quality”.

The Proposed Action would involve ground-disturbing activities adjacent to surface waters, which could increase sedimentation entering those waters, potentially impacting aquatic organisms, water clarity, and the beneficial uses. Construction contractors would be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP), as a part of their Construction Stormwater General Permit, which includes installation of Best Management Practices (BMPs) to help protect surface water quality from storm water runoff. In addition, The Proposed Action would either use or amend its existing Section 401 Water Quality Certification from the CVRWQCB and follow the avoidance and minimization measures prior to commencement of construction to ensure compliance with the Basin Plan and protect beneficial uses. The 404(b)(1) evaluation for discharges of fill into Waters of the U.S. has been conducted and is included in Appendix K.

### ***Magpie Creek Project***

The proposed construction includes substantial in-channel work, including the realignment and widening of Magpie Creek, levee widening, culvert installation, and the removal of channel vegetation. Cofferdams would be installed for the culvert installation, channel realignment, and channel widening for pumps to dewater the construction area. Water would be pumped and diverted around the construction area so that limited in-water work would occur, and minimal sediment would enter receiving waters. Greater quantities of sediment would be anticipated downstream while the vegetation becomes established on the channel banks.

### ***American River Erosion Contract 3B North and South, and 4B***

The impacts to water quality would primarily arise during construction of the launchable toe erosion protection during the in-water work window. Installation of tiebacks would require additional ground disturbance above the launchable rock toe and planting benches; however, the tie-back construction is not anticipated to directly affect water quality because use of turbidity curtains would help contain any sedimentation from entering the river. The planting benches would be constructed between the launchable rock toe erosion protection and the existing riverbank, resulting in the conversion of open water habitat to riparian forest. Loss of shade along portions of the reach would result in impacts on water temperature in the river.

### ***American River Erosion Contract 4A***

The entire project is located above the river’s OHWM and approximately 1,600 ft from the channel; therefore, water quality impacts to the American River are not anticipated. However, the project would involve filling approximately 0.60 acres of an 11.5-acre wetland to construct the berm. In the event that water is in the wetland when construction is planned to occur, USACE would obtain a Low Threat Discharge General Order (LTGO) permit for dewatering which would require water quality monitoring to ensure that any water that is dewatered from the construction zone meets Basin Plan requirements as part of the LTGO permit prior to discharging back into the wetland.

### *Sacramento River Erosion Contract 3*

Approximately 29 acres of material would be placed below the OHWM for Sacramento River Erosion Contract 3. The turbidity impacts caused by launchable rock toe construction are similar to those described for American River Erosion Contract 3B; likewise, tieback construction is not anticipated to affect water quality because the work would occur outside the wetted channel and use of a turbidity curtain would contain any sediment. All materials would be brought to the sites by barges, which could impact turbidity during the barges' movement into position and anchoring. Loss of shade along portions of the reach would result in impacts on water temperature in the river.

### *American River Mitigation Site*

The habitat mitigation features at the 120-acre ARMS would include breaching the existing 58-acre man-made pond to connect it with the American River and grading of the site to create channels and floodplain forest for juvenile salmonid habitat. Soil and water at the site has been tested to determine the presence of chemical contamination. Water quality testing of the man-made pit would need to be conducted to ensure that the American River would not receive water which could cause violation of water quality standards or degradation of water quality.

### *Sacramento River Mitigation Site*

Habitat mitigation at the 200-acre SRMS would entail breaching the existing levee in at least one place and grading the site to create one or more channels and expose the interior to tidal influence. There is potential for contaminated sediment on site with a closed municipal solid waste landfill is located on the eastern portion of the site which would be avoided. The western portion has been used as a dredge material disposal site and this material would be tested to assess its suitability for use in mitigation features. The water quality impacts resulting from ground disturbance and operation of construction equipment are anticipated to be similar to the ARMS. Water quality impacts related to temperature, dissolved oxygen, salinity, and methylmercury are expected to be less than significant.

### *Piezometer Network*

Installation of the piezometers for monitoring water levels throughout the project area requires drilling wells on the landside of the levee system and would not conflict with any water quality control plans or sustainable groundwater management plans.

#### **4.3.4.2.3 Alternatives Comparison**

A more detailed description of the impacts of the Alternatives on water quality is available in Appendix B 3.4 Water Quality. This section will briefly summarize changes to significant effects, including greater/lesser significant effects than the Proposed Action.

Alternatives 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects already being covered under NEPA/CEQA from other agencies. Consequently, there would be no impacts to water quality. The impacts of Alternatives 3a, 3b, 3c, 3d, 4a (CEQA-only), 4b (CEQA-only), and 5b would be similar to those of the Proposed Action.

## **4.3.5 Air Quality**

### **4.3.5.1 Existing Conditions**

The Study Area is located within the Sacramento Valley Air Basin (SVAB); however, Sacramento River Erosion Improvements include transporting materials by barge in the San Francisco Bay Area Air Basin (SFBAAB). The majority of the Proposed Action is located in Sacramento County, which places the project primarily under the jurisdiction of the SMAQMD. However, material associated with the Sacramento River Erosion Improvements would be transported from within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

#### **4.3.5.1.1 Sensitive Receptors**

Sensitive receptors include schools, residences, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, churches, and retirement homes. The majority of the levees in the project area are in close proximity to local residences, with many peoples' backyards very close to the toe of the levee. Additionally, there are a number of schools located along the Sacramento and American Rivers, within 2 miles of the Proposed Action.

Recreationists using the levee systems, American River Parkway, Sacramento Northern Bike Trail, and nearby parks including Miller Park, Discovery Park, and Garcia Bend Park, are also considered to be sensitive receptors.

#### **4.3.5.1.2 Criteria Air Pollutants**

The Clean Air Act established the National Ambient Air Quality Standards (NAAQS) for specific air pollutants: ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM<sub>10</sub>), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less (PM<sub>2.5</sub>), and lead (Pb). O<sub>3</sub> is a secondary pollutant that is not emitted directly into the atmosphere. Instead, it forms by the reaction of two ozone precursors: reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>). The California Ambient Air Quality Standards (CAAQS) also include specific air pollutant standards for the aforementioned criteria air pollutants.

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the NAAQS, primarily through their review of the State Implementation Plans (SIPs). In California, the California Air Resources Board (CARB) is responsible for the establishment of the SIP. The local air quality management districts are responsible for the enforcement of the SIP, as well as the NAAQS and CAAQS. If an area is meeting the NAAQS and CAAQS, that area is considered in "attainment." However, areas that are noncompliant are designated "non-attainment" areas. Once attainment has been achieved, the air basin may be placed under a maintenance plan to demonstrate long-term compliance with the NAAQS.

Due to the non-attainment designations for the SVAB, the SMAQMD is required to prepare SIPs for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> to establish how the area would attain the standards by dates specified within the plans. (The SMAQMD is currently under a maintenance plan for PM<sub>10</sub>, which must show maintenance of the NAAQS through 2033.)

Barges transporting material to the site will travel through the San Francisco Bay Area Air Basin (SFBAAB) in addition to the SVAB. The SFBAAB is in nonattainment for O<sub>3</sub> (1-hour and 8-hour averaging), PM<sub>10</sub> (24-hour and annual), and PM<sub>2.5</sub> (24-hour and annual) (BAAQMD 2017). Due to the non-attainment designations for the Bay Area, the Bay Area Air Quality Management District (BAAQMD) is required to prepare SIPs for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> to establish how the area would attain the standards by dates specified within the plans.

Additionally, Federal projects are subject to the Clean Air Act General Conformity Rule (40 CFR 51, Subpart W). The General Conformity Rule ensures that Federal projects conform to applicable SIPs so that Federal actions do not interfere with a state's strategies used to attain the NAAQS. The rule applies to Federal projects in non-attainment areas for any of the six criteria pollutants for which EPA has established these standards, and in any areas designated as "maintenance" areas. The rule covers both direct and indirect emission of criteria pollutants or their precursors that result from a Federal project, are reasonably foreseeable, and can be practicably controlled by the Federal agency through its continuing program responsibility.

#### **4.3.5.1.3 Toxic Air Contaminants**

In addition to criteria air pollutants, EPA regulates toxic air contaminants (TACs), also known as hazardous air pollutants. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health.

#### **4.3.5.2 Environmental Effects**

##### **4.3.5.2.1 No Action Alternative**

Construction of the No Action Alternative will exceed the SMAQMD and Bay Area (BAAQMD) daily emission thresholds for NO<sub>x</sub> and PM<sub>10</sub> and would be a significant impact. Mitigation will be implemented to reduce PM emissions in the form of dust due to construction to less than significant. Although mitigation measures will be implemented to reduce NO<sub>x</sub> for off-road equipment by 20 percent, construction-related emissions will still exceed SMAQMD's emission thresholds for NO<sub>x</sub>. The USACE would be required to pay an off-site mitigation fee for NO<sub>x</sub> emissions in the SVAB, which would reduce the effect to a less-than-significant level.

Borrow activities and barge delivery emissions would not exceed Yolo Solano Air Quality Management District (YSAQMD) thresholds and will result in a less-than-significant impact. Since less than 50 percent of emissions associated with borrow activities could occur in the Feather River Air Quality Management District jurisdiction, it was assumed that district's thresholds will not be exceeded. Borrow activities emissions associated with potential borrow sites located north of the project site were captured in the SMAQMD off-site soil estimates.

Annual construction emissions from the No Action Alternative will exceed the General Conformity threshold for NO<sub>x</sub> in the Sacramento Federal Nonattainment Area (SFNA), resulting in a significant adverse effect. Implementing mitigation (discussed in detail in section 3.11.6 "Mitigation Measures" of the 2016 ARCF GRR FEIS/EIR) such as Enhance Exhaust Control Practices for off-road equipment and only using on-road heavy-duty diesel trucks or equipment that comply with USEPA 2010 on-road emission standards and using Tier 3 and 4 marine engines and electrical equipment, as feasible, will reduce annual construction emissions.

However, emissions would remain above the *de minimis* threshold. Therefore, USACE would contribute to SMAQMD’s off-site mitigation fee program sufficiently to offset the amount of emissions generated from project activities. With mitigation, this direct effect will be reduced to a less-than-significant level.

Construction activities will result in short-term diesel particulate (DPM) emissions from onsite heavy-duty equipment and trucks and could expose sensitive receptors to DPM generated during construction, therefore resulting in a potential adverse health effect. However, implementing mitigation measures will reduce DPM and associated health risks during construction to less than significant.

The No Action Alternative is not a major source of odor. Finally, long-term O&M activities will result in limited emissions of criteria pollutants from activities such as driving trucks on the levees for inspections and maintenance actions, mowing of grasses on the levees, and possibly limited heavy earth-moving equipment for repair of any damage to the site. These O&M activities would be essentially the same as the activities that are currently undertaken and would be continued into the future. Therefore, impacts from long-term O&M activities would be less than significant.

#### 4.3.5.2.2 Proposed Action

**Table 4.3.5-1. Summary of Air Quality Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.5-a	Conflict with or Obstruct Implementation of the Applicable Air Quality Plan	Significant and Unavoidable	Significant and Unavoidable
3.5-b	Result in a Cumulatively Considerable Net Increase of Any Criteria Area Pollutant for which the Project Region is Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard during Construction	Significant and Unavoidable	Significant and Unavoidable
3.5-c	Expose Sensitive Receptors to Substantial Pollutant Concentrations	Less than Significant	Short-term and Minor effects that are Less than Significant
3.5-d	Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	Less than Significant	Short-term and Negligible, and Long-term and Minor effects that are Less than Significant

**Table 4.3.5-2. Air Quality Effects by Project Component**

Impact Number	Location	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.5-a	Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	AIR-1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable	Significant and Unavoidable
3.5-b	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	AIR-1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable	Significant and Unavoidable
3.5-c	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, ARMS, ARMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
3.5-d	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	Less than Significant	Short-term and Negligible, and Long-term and Minor effects that are Less than Significant

Note: The Piezometer Network would have minimal air quality impacts.

A more detailed description of the impacts of the Proposed Action to air quality and details of Mitigation Measures AIR-1, AIR-2, AIR-3, AIR-4 and AIR-5 are available in Appendix B Section 3.5 “Air Quality”.

***American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek Project, Sacramento River Mitigation, American River Mitigation***

**Construction-related Impacts**

Maximum daily and annual emissions were estimated for ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and compared to the SMAQMD and BAAQMD thresholds, as well as the Federal *de minimis* thresholds. These results are shown in Appendix B, 3.5 Air Quality, Tables 3.5-3 through 3.5-6. Construction-related emissions would exceed the SMAQMD’s emission threshold for NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Construction-related emissions would exceed the BAAQMD’s emission thresholds for NO<sub>x</sub> and ROG. Construction-related emissions would exceed SVAB Federal General Conformity standards for PM<sub>10</sub> in 2024, 2026 and 2027. The Proposed Action would not exceed SFNA Federal General Conformity standards. The actual emissions generated in the SMAQMD may be reduced depending on the availability of the borrow sites that are located closer to the Proposed Action. Given that construction emissions under the Proposed Action would exceed the SMAQMD, BAAQMD, and *de minimis* thresholds, the project would result in a significant impact.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 30 or 70-year exposure period is often assumed. However,

while cancer can result from exposure periods of less than 30 or 70 years, exposure periods of 2 to 3 years are not anticipated to result in increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposure periods that are chronic (OEHHA 2015).

Construction of the Proposed Action would result in short-term emissions of TACs, primarily diesel particulate (DPM) emissions, from on-site heavy-duty equipment and on-road haul trucks. Construction activities associated with the ARCF 2016 Project, which includes the Proposed Action would continue through 2027. As shown in Table 3.5-11 of Appendix B, 3.5 Air Quality, the exhaust component of the PM<sub>2.5</sub> is a small portion of this total generated emissions and would not be above SMAQMD or General Conformity *de minimis* thresholds. Regardless, SMAQMD-recommended construction mitigation which would further reduce emissions of TACs. A Health Risk Assessment (HRA) was prepared for the American River Erosion Contract 3B project component due to the staging and hauling activities proposed in proximity to O.W. Erlewine Elementary School. The HRA identified a maximum risk exposure (chances in one million for carcinogenic risk) of 6.06. The estimated risk presented here represents the point of maximum exposure (PMI) and does not exceed the SMAQMD-adopted thresholds of significance of an incremental cancer risk of 10 in one million. For chronic hazard risk, the maximum risk exposure would be 0.09, compared to a threshold of 1 in one million. Therefore, values would not exceed the applicable threshold at any other nearby receptors, and exposure of sensitive receptors to TACs would be a less-than-significant impact.

During construction, the project would generate odor from the use of diesel fuels over the construction period from 2024 to 2027. However, the project would not generate a considerable volume of other emissions that would adversely affect a substantial number of people. Contract Specifications prohibit use of undesirable rocks for revetment with low density and detrimental veins, which are common in with high concentration asbestos containing rocks. Consequently, there is a low risk of revetment being brought to the site with high concentrations of asbestos.

Mitigation measures AIR-1, AIR-2, AIR-3, AIR-4, and AIR-5, which have been modified since the adoption of the ARCF 2016 Project, would reduce emissions of significant construction-related criteria air pollutants. Implementation of Mitigation Measures AIR-1 to AIR-5 would require establishment of BMPs and other on-site controls, including use of Tier 4 equipment for off-road equipment and higher-tier marine engines, to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions at the project site. USACE would pay a mitigation fee to offset remaining NO<sub>x</sub> emissions by reducing emissions at off-site sources. There is no off-site fee program or other options to further reduce PM emissions generated at the project site during construction. As a result, the project would continue to generate maximum daily PM emissions that exceed SMAQMD thresholds of significance in 2024, 2026, and 2027. There are no other feasible mitigation measures, or additional mitigation measures approved by the SMAQMD, that can be implemented to further reduce this significant adverse impact related to PM<sub>10</sub> emissions generated at the project site during construction. Therefore, this impact would be significant and unavoidable.

### Operation-related Impacts

Long-term operational and maintenance activities under the Proposed Action would result in limited emissions of criteria air pollutants and precursors from the use of on-road vehicles on the levees for inspection and maintenance activities, mowing grasses on the levees, vegetation

removal from channels, and possibly limited heavy earth-moving equipment for repair of any damage to the site. These emissions would be limited to a temporary time frame once or twice per year, and O&M activities would be similar to those conducted under current conditions. Emissions resulting from long-term operational and maintenance activities would not exceed SMAQMD or *de minimis* thresholds and would be less than significant.

#### **4.3.5.2.3 Alternatives**

##### ***Alternative 3a, 3b, 3c, and 3d***

Alternatives 3a, 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMs, and ARMS) would be unchanged. It is anticipated that the material and equipment needed as well as construction activities for these alternatives would be similar to the Proposed Action. Therefore, these alternatives would not change any of the air quality related construction impacts.

##### ***Alternatives 4a and 4b (CEQA-Only)***

Alternatives 4a and 4b would include alternative designs for improvements to the ARMS project component. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would remain unchanged. Alternative 4a would preserve an approximately 30-acre portion of the existing man-made pond, and Alternative 4b would preserve an approximately 20-acre portion; therefore, reducing the need for fill materials, construction-related transportation, and construction equipment usage. Alternatives 4a and 4b would result in a decrease in the generation of criteria air pollutants and toxic air contaminants due to the preservation of a portion of the man-made pond. However, the emissions generated would nevertheless exceed significance thresholds, and significance conclusions, including significance after implementing mitigation measures, would be similar to the Proposed Action.

##### ***Alternatives 5a and 5c***

Alternatives 5a and 5c would eliminate the need to construct the SRMS project component and proposes alternative mitigation fulfillment. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. This alternative would eliminate air quality impacts associated with the SRMS.

##### ***Alternative 5b***

Alternative 5b would replace the SRMS project component with the new Watermark Farms Mitigation Site. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. It is anticipated that the material and equipment needed to perform construction activities for this alternative would be substantially greater than the Proposed Action, due to the need to construct a new levee. Therefore, this alternative would increase the amount of criteria air pollutants, however, the impact conclusion would be similar to the Proposed Action.

## **4.3.6 Greenhouse Gas Emissions and Energy Consumption**

### **4.3.6.1 Existing Conditions**

The existing conditions and affected environment related to GHG and Energy Consumption are consistent with conditions described in the ARCF FEIS/EIR. This analysis has been updated with the 2023 Interim NEPA Guidance on Consideration of Greenhouse Gas Emissions promulgated by CEQ.

Although the scientific community largely agrees on GHGs as a major driver of variable, long-term weather conditions and uses CO<sub>2e</sub> to compare the total GHG emissions from various projects, CEQ has not yet issued a threshold for determining whether mobile source emissions from a project would result in a significant impact. In lieu of a quantitative threshold, CEQ has provided interim GHG guidance that builds upon and updates CEQ's 2016 Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of changing conditions in NEPA Reviews ("2016 GHG Guidance"), highlighting best practices for analysis grounded in science and agency experience. These include quantifying the size and impact of the proposed action's reasonable direct, indirect, long-term, and short-term GHG emissions while also considering reasonable alternatives that avoid or mitigate for those emissions.

### **4.3.6.2 Environmental Effects**

#### **4.3.6.2.1 No Action Alternative**

The construction emissions estimated for the No Action Alternative exceeds the SMAQMD and YSAQMD GHG threshold of 1,100 metric tons (MT) CO<sub>2e</sub> per year, but project-components within BAAQMD territory, GHG emissions will be well below the BAAQMD GHG threshold of 10,000 MT CO<sub>2e</sub> per year. These local thresholds are only adopted for the CEQA significance conclusion. In accordance with USACE policy and CEQ guidelines, for the NEPA effects determination, USACE has completed a comparative, qualitative analysis demonstrating the No Action Alternative will result in negligible GHG emissions (less than 10,000 MT) when compared to the Sacramento County GHG emissions data that estimates over 4 million MT of GHG were released in 2021 (Sacramento County 2023). Implementing mitigation measures would reduce GHG emissions during construction to the maximum extent practicable. For any emissions not reduced through proposed mitigation, the USACE would purchase carbon offset credits in coordination with SMAQMD and YSAQMD, as needed, in accordance with Mitigation Measure GHG-1. With these offset credits, impacts to long-term weather conditions from construction of the No Action Alternative will be reduced to less than significant.

### 4.3.6.2.2 Proposed Action

**Table 4.3.6-1. Summary of Greenhouse Gas Emissions and Energy Consumption Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant
3.6-b	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant
3.6-c	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Less than Significant	No Impact
3.6-d	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	No Impact	No Impact

**Table 4.3.6-2. Greenhouse Gas Emissions and Energy Consumption Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	GHG-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant
3.6-b	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	GHG-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant
3.6-c	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, ARMS, ARMS	N/A	Less than Significant	No Impact
3.6-d	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	No Impact	No Impact

Note: The Piezometer Network would have minimal GHG impacts.

A more detailed description of the impacts of the Proposed Action and details of Mitigation Measure GHG-1 is available in Appendix B Section 3.6 “Greenhouse Gas Emissions, and Energy Consumption”.

***American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site***

The Proposed Action would be constructed using typical construction methods and would not include any activities identified as wasteful or having unusually high energy consumption. Operational activities and energy use would be similar to the No Action Alternative activities. The Proposed Action would result in energy consumption during construction activities; however, the Proposed Action would not result in energy consumption that would conflict with State or local plans for renewable energy or energy efficiency.

The Proposed Action would generate construction-related emissions from vehicle engine exhaust from operation of heavy-duty construction equipment, haul trips, and construction worker vehicle trips. The construction related GHG emissions estimated for each year of construction are presented in Appendix B Section 3.6 “Greenhouse Gas and Energy.” The project would generate construction related GHG emissions exceeding the SMAQMD construction threshold of 1,100 MT of CO<sub>2</sub>e per year during all construction years; these thresholds were used to determine significance under CEQA. As discussed under the No Action, a qualitative analysis was used for the NEPA analysis as there are currently no Federal thresholds. To determine if GHG emissions would provide a significant effect, the qualitative analysis considered the quantity of greenhouse gas emissions anticipated and the potential for preventing greenhouse gas reduction goals from being met.

Given the above, generation of construction related GHG emissions from the Proposed Action would cause a potentially significant impact to the environment. The design refinements include substantial changes to the project schedule, but annual emissions of the reduced schedule would still be potentially significant.

However, implementing the project would increase the likelihood that the flood management system could accommodate future flood events because of changing conditions. The Proposed Action would improve the resiliency of the levee system with respect to changing climatic conditions, potentially reducing exposure of property or persons to the effects of variable, long-term weather conditions.

The intent, purpose, and function of the Proposed Action aligns with the goals of California Assembly Bill (AB) 32 Scoping Plan to protect the State from the detrimental effects of long-term weather conditions. The Proposed Action is an adaptive measure to improve resiliency against these potential effects which could include increased flooding frequency, magnitude, and duration. However, the project would include new temporary, short-term GHG emissions during construction, which could result in a significant impact.

Because the Proposed Action and the design refinements would exceed the 1,100 MTCO<sub>2e</sub>/year threshold established by SMAQMD, GHG impacts would be significant under CEQA. Implementing Mitigation Measure GHG-1, which was previously adopted, would reduce construction-related GHG emissions to a less-than-significant level through efficient operation of construction equipment engines, enhanced emissions reductions for equipment used during construction, minimization of equipment idling when not in use, and purchasing carbon offset credits.

In accordance with USACE policy and CEQ guidance, NEPA significance determination of the Proposed Action is tiered commensurate with the level of impact. Quantitative analysis of GHG impacts resulting from the Proposed Action is compared to the overall GHG emissions on an annual basis at the County level. GHG modeling shows that from 2024-2027, construction emissions would release an estimated range of 3,213 MT/CO<sub>2e</sub> to 14, 002,34 of MT/CO<sub>2e</sub> GHG. Comparably the most recent data from Sacramento County, states that in 2021 off-road vehicles were estimated to factor for 2.5% of emissions in Sacramento County, which is 107,174 MT CO<sub>2e</sub> out of a total of 4,026,910 MT CO<sub>2e</sub> GHG emitted that year (Sacramento County 2023). This qualitative analysis demonstrates that emissions from this project would increase overall GHG inventory in Sacramento County by a range of .0008-.0034% each year of construction. The Proposed Action would generate short-term, direct construction emissions in accordance with the Federal GHG reduction goals. Based on Federal guidelines the Proposed Action would have long-term but minor effects that are less than significant.

The Proposed Action will have long-term benefits by incorporating climate resiliency into the Project, providing flood risk reduction to communities susceptible to variable, long-term weather effects such as increased precipitation and inland flooding.

#### **4.3.6.2.3 Alternatives**

A more detailed description of the impacts of the Alternatives on Greenhouse Gas, and Energy is available in Appendix B Section 3.6, “Greenhouse Gas and Energy.”

##### ***Alternatives 3a, 3b, 3c, and 3d***

Alternatives 3a, 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would be unchanged. These alternatives would not change any of the construction impacts associated with GHG, or energy consumption.

##### ***Alternatives 4a and 4b***

Alternatives 4a and 4b includes alternative designs for improvements to the ARMS project component. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion 4B, Sacramento River Erosion Contract 3, and SRMS) would remain unchanged. Alternatives 4a and 4b would result in a decrease in the generation GHG emissions due to the preservation of a portion of the man-made pond. However, the combined project related GHG emissions generated during the years in which the ARMS project component would be constructed 2025 and 2026 would remain above the SMAQMD threshold.

### *Alternative 5a and 5c*

Alternatives 5a and 5c would eliminate the need to construct the SRMS project component and proposes alternative mitigation fulfillment. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. These alternatives would eliminate GHG, and energy consumption impacts associated with the SRMS.

### *Alternative 5b*

Alternative 5b would replace the SRMS project component with the new Watermark Farms Mitigation Site. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. It is anticipated that the material and equipment needed as well as construction activities for Alternative 5b would be similar to the Proposed Action. Therefore, this alternative would not change any of the construction impacts associated with GHG, or energy consumption compared to the Proposed Action.

## **4.3.7 Noise and Vibration**

### **4.3.7.1 Existing Conditions**

#### **Noise Generation**

The majority of the project area is located in urban and residential areas. The primary existing noise sources near the project sites include vehicular traffic, trains, common urban uses such as those in downtown Sacramento, air traffic, boats operating along the American River and Sacramento River, and light industrial uses and agricultural machinery in the vicinity of the MCP improvements. Certain areas along the Sacramento River have higher boating noise due to public marinas such as Discovery Park, Garcia Bend Park, Miller Park, Stan's Yolo, and Sherwood Harbor. MCP may experience higher levels of air traffic noise due to the proximity to the McClellan Airport.

#### **Noise Receptors**

The majority of the levees in the project area are in close proximity to local residences, with many backyards very close to the toe of the levee. Since the levee elevation is higher than the houses, noise on the levees travels into nearby yards and houses. Some areas have trees between the levee and homes, which would filter some noise from levee activities. Additionally, residential properties near haul routes would be subject to a temporary increase in noise levels. Refer to Chapter 2, "Description of Project Alternatives," for proposed haul routes.

Recreationists using the levee systems, American River Parkway, Sacramento Northern Bike Trail, and local parks including Miller Park, Discovery Park, and Garcia Bend Park, are considered to be sensitive noise receptors. In addition, local wildlife near these American and Sacramento River, and Magpie Creek are considered sensitive receptors.

### 4.3.7.2 Environmental Effects

#### 4.3.7.2.1 No Action Alternative

The No Action Alternative generates temporary, short-term, and intermittent noise at or near noise sensitive receptors in and around the project area due to construction activities associated with the previously authorized levee and erosion repairs. Construction activities along the American River, Sacramento River, and East Side Tributaries result in temporary significant impacts to residents, recreationists, and other noise sensitive groups. However, implementation of mitigation measures reduces this impact to less than significant.

Ground vibration from construction of the No Action Alternative is expected to be discernible only at residences within 40 feet of the construction equipment resulting in a potentially significant impact. However, implementation of mitigation measures should reduce this impact to less than significant.

#### 4.3.7.2.2 Proposed Action

Construction of the Piezometer Network would include minimal construction equipment (a drill rig and support truck) and duration of work at each individual location would be short (generally less than a day) because the network would be dispersed throughout the Proposed Action Area. Therefore, noise impacts from installation of the Piezometer Network are captured in the analysis of the remaining project components and do not require a separate evaluation.

**Table 4.3.7-1. Summary of Noise and Vibration Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a	Generation of 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 to other agencies	Significant and Unavoidable	Significant and Unavoidable
3.7-b	Generation of excessive ground borne vibration or ground borne noise levels	Significant and Unavoidable	Significant and Unavoidable

**Table 4.3.7-2. Noise and Vibration Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and 4B, Sacramento River Erosion Contract 3, MCP, ARMS	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-a	SRMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
3.7-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, Sacramento River Erosion Contract 3	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-b	MCP, SRMS, ARMS	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

A more detailed description of the impacts of the Proposed Action to noise and vibration and details of Mitigation Measure NOI-1 is available in Appendix B Section 3.7 “Noise and Vibration”.

***American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, ARMS, and Piezometer Network***

Flood risk reduction improvements for the American River Erosion Contract 3B North and South, 4A, and 4B, Sacramento River Erosion Contract 3, MCP, ARMS, and Piezometer Network under the Proposed Action would include similar equipment and produce similar noise levels as the No Action Alternative. However, much of the erosion protection work along the Sacramento River would occur from barges, and the existing levee would act as a natural barrier between the construction work area and nearby sensitive receptors on the landside of the levee (i.e., residential properties). Therefore, noise generation at nearby sensitive receptors during construction of the Sacramento River Erosion Contract 3 would be slightly reduced because of the attenuation provided by this natural barrier. The MCP and ARMS components include the potential for nighttime construction activities.

Construction of these project components would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, including at nearby residential properties and recreation sites, in excess of local standards. The closest sensitive receptors to these American River and Sacramento River erosion improvement areas (with the exception of American River Erosion Contract 4A) include single family residences located as close as 25 feet from proposed haul routes and construction areas. The closest sensitive receptors to the Magpie Improvements are residential properties located approximately 200 feet north of the northern section of the project alignment where canal and slope flattening would occur. The closest sensitive receptors to the ARMS are residential properties located approximately 400 feet north of the project site.

Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA  $L_{eq}$  for daytime, and 50dBA  $L_{eq}$  for nighttime) would be exceeded where daytime construction activity occurs within approximately 600 feet of existing sensitive land uses and nighttime construction activity would occur within 1,200 feet of existing sensitive land uses. Therefore, this impact would be significant. The Proposed Action would have similar effects as the No Action Alternative.

Implementing previously adopted Mitigation Measure NOI-1 would reduce significant construction-related noise generation to the extent feasible by requiring the preparation of a noise control plan, implementing feasible best management practices such as placing noise barriers between the construction site and nearby residence, and notifying sensitive users of excessive noise generation during the day. However, it is still possible that noise levels would exceed significance thresholds and no further mitigation measures are feasible to further reduce construction-related noise impacts. Since construction noise exceeding the  $L_{eq}$  thresholds is still likely to be generated, after implementation of all feasible mitigation measures, this impact would be significant and unavoidable.

## *Sacramento River Mitigation Site*

Construction activities at the SRMS would be similar to the activities described above for other project improvements. Construction of the SRMS would include the potential for nighttime construction activities. Construction would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, however, there are no nearby sensitive receptors and this temporary increase in noise levels would be consistent with the Sacramento County General Plan ordinances. Therefore, this impact would be less than significant. The Proposed Action would therefore have a less-than-significant noise impact.

### **4.3.7.2.3 Vibration Impacts**

#### *American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3*

In accordance with Caltrans guidance for determining impacts from vibration to structures (i.e., vibration levels that exceed 0.2 inch per second peak particle velocity [PPV]) and based on reference vibration levels and standard attenuation rates for a vibratory compactor, vibration from heavy-duty equipment may damage structures located within 25 feet of construction activity. For purposes of this analysis, movement of loaded haul trucks was conservatively considered to produce a vibration level of approximately 86 VdB (0.076-inch per second peak particle velocity [PPV] at a distance of 25 feet [FTA 2018; Caltrans 2004]). Regarding disturbance to sensitive land uses, construction equipment would exceed FTA-recommended criteria for infrequent events (i.e., 80 VdB) within 75 feet of construction activity. Based on aerial imagery, sensitive receptors near the American River Erosion Contract 3B and 4A, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3 sites are located as close as 25 feet from the project footprint. Therefore, the use of heavy-duty construction equipment would exceed the FTA threshold for sensitive land uses and would result in a significant impact to nearby residential receptors.

Implementing previously adopted Mitigation Measure NOI-1 would reduce construction-related vibrations to the extent feasible by requiring the preparation of a vibration control plan, implementing feasible best management practices such as routing heavy loaded trucks away from sensitive receptors and limiting the use of vibratory rollers and packers near sensitive receptors. Additionally, a pre- and post- construction survey would be conducted to assess the existing condition of structures prior to construction and potential architectural/structural damage induced by levee construction vibration at each structure within 100 feet of construction activities, including staging areas. However, it is still possible that vibration levels would exceed significance thresholds and no further mitigation measures are feasible for implement to further reduce construction-related vibration impacts. This impact would be significant and unavoidable.

#### *Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site*

The No Action Alternative includes a similar mix of equipment along the American and Sacramento Rivers. The nearest sensitive receptors to these project components are located more than 75 feet from project improvements. Therefore, the use of heavy-duty construction equipment would not exceed the FTA threshold for sensitive land uses and would result in a less-

than-significant impact to nearby residential receptors. The No Action Alternative includes a similar mix of equipment along the American and Sacramento Rivers.

#### **4.3.7.2.4 Alternatives**

##### ***Alternatives 3a, 3b, 3c, and 3d***

Alternatives 3a, 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River Erosion Contract 3B, Sacramento River, MCP, SRMS, and ARMS) would be unchanged. The project elements that would be altered would not change any of the construction effects on noise and vibration. These short-term impacts during construction activities would be significant and even with implementation of Mitigation Measure NOI-1 would remain significant and unavoidable as no additional feasible mitigation is available.

##### ***Alternatives 4a and 4b (CEQA-Only)***

Alternatives 4a and 4b include an alternative design for the improvements to the ARMS project components. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would have the same effects as the Proposed Action. The project elements that would be altered would not change any of the construction effects on noise and vibration. Short-term noise impacts during construction activities would be significant and even with implementation of Mitigation Measure NOI-1 would remain significant and unavoidable as no additional feasible mitigation is available. Groundborne vibration and noise levels would be less than significant.

##### ***Alternatives 5a and 5c***

Alternatives 5a and 5c would eliminate the need to construct the SRMS project component and propose alternative mitigation fulfillment. Alternative 5a includes purchasing all remaining, required mitigation credits from Service Approved Conservation Banks. Alternative 5c include the combination of three less conventional approaches to mitigation fulfillment including purchasing Delta Smelt Conservation Bank Credits, providing funding for a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, and funding the Sunset Pump project. These alternatives would eliminate noise and vibration impacts associated with the SRMS and there would be no impact.

##### ***Alternative 5b***

Alternative 5b would replace the SRMS project component with the new Watermark Farms Mitigation Site. The SRMS is located in a more rural area with only scattered rural residences, the closest of which is located 1,400 feet south of the mitigation site. This alternative would generate new significant and unavoidable noise impacts (compared to the less than significant noise impacts of the Proposed Action) due to the proximity of residences to the Watermark Farms Mitigation Site and this impact would be significant. Implementation of Mitigation Measure NOI-1 would reduce this impact, but the impact would remain significant and unavoidable as no additional feasible mitigation is available.

This alternative would not change any vibration impacts associated with construction activities as all residences would be located far enough away to not result in a change to vibration impact. These impacts would be less than significant.

## **4.3.8 Hazards and Hazardous Materials**

### **4.3.8.1 Existing Conditions**

Phase 1 Environmental Site Assessments (ESA) are required by USACE policy for all Civil Works projects during the feasibility study phases for all construction activities. A Phase 1 ESA was conducted in 2012 for the project locations considered in the 2016 ARCF GRR FEIS/EIR and included areas within a 1-mile buffer of these locations. Within this buffer a search of Federal, state, and local environmental databases and historic aerial, topographic, and fire maps were reviewed. A site visit of the study area was also conducted to identify recognizable environmental concerns. The purpose of a Phase 1 ESA is to identify potential current or former hazardous, toxic, or radioactive waste sites. The ARCF GRR FEIS/EIR summarized the Phase 1 ESA results in Section 3.17.1 of that document and the full report is in Appendix H of that document. The 2012 Phase 1 ESA identified seven sites with the potential to affect the ARCF footprint in the 2016 GRR FEIS/EIR; however, none of those sites impact the areas considered under the Proposed Action in this SEIS/SEIR.

Due to the addition of new areas considered under the Proposed Action, updated Phase 1 ESAs were conducted at the American River sites and MCP. All Phase 2 ESAs, which consist of laboratory analyses of soil and water samples, were conducted at MCP. Below is a list of sites, dates, and findings of the new ESAs:

- American River Erosion Contract 3B: A Phase 1 ESA was conducted in 2020 and did not find any new hazardous materials sites. Contaminated groundwater is unlikely due to overall groundwater gradients and presence of a levee cutoff wall.
- American River Erosion Contract 4A: A Phase 1 ESA was conducted in 2023 and found a record of a drinking water well within ¼ mile of the site with PFAS (per- and polyfluoroalkyls substances) contamination.
- MCP: A Phase 1 ESA was conducted in 2015 on the undeveloped parcels to the east and west of Raley Blvd to be acquired by SAFCA for floodplain conservation. Due to the former agricultural use and the proximity of McClellan Airforce Base, the report recognized the potential for soil and groundwater contamination. A limited Phase II ESA followed in 2017. A Phase I ESA was conducted at Magpie Creek between Raley Blvd and Vinci Avenue in 2020. A Phase II ESA was conducted in this same area in 2021.

A search of hazardous materials sites within the study area, including the new areas considered under the Proposed Action, was conducted in February 2023 using the CalEPA Cortese List and EnviroStor database, GeoTracker database, and list of Cease and Desist / Cleanup and Abatement Orders for sites containing hazardous materials which overlap with the projects considered under the Proposed Action. The ARMS and the McClellan Airforce Base are Cortese-listed sites whose contaminants could affect areas considered under the Proposed Action. A municipal solid waste landfill exists on the southeastern portion of SRMS with no listed contaminants of concern. It has been closed since 1980.

#### **4.3.8.1.1 Known Hazardous Materials Sites**

##### ***McClellan Airforce Base***

McClellan Airforce Base was a maintenance depot for aircraft and electronic equipment from 1939 to 2001 and was designated a Federal superfund site and was listed on National Priorities Lists (NPL) in 1987. Magpie Creek and its tributaries run through the base east of Raley Blvd. A search of the California Department of Toxic Substances Control (DTSC) EnviroStor and California EPA Cortese list databases of hazardous waste identified at the facility in significant quantities. These include organic solvents, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), vinyl chloride, metals, pesticides, oils and greases, and radioactive compounds. From the 1940s through 1978, these materials were disposed and burned at various sites along the western side of the base. Environmental investigations beginning in 1979 identified soil and groundwater contamination both on and off the base. DTSC has been overseeing cleanup of the site, and much of the base has been converted to McClellan Business Park. Cleanup of the base extended as far west as the confluence of Don Julio and Magpie Creeks at Raley Blvd, within the project area, where Don Julio Creek was dewatered and bed sediment was excavated and transported away. Test results of the excavated material did not exceed cleanup criteria for the contaminants of concern (AECOM 2016).

As part of the 2017 Phase II ESA on the floodplain conservation parcels, 20 surface soil samples were collected between 0 and 1 feet below the ground surface and analyzed for pesticides and herbicides, metals, dioxins, semi-volatile organic compounds, volatile organic compounds, total petroleum hydrocarbons, and polychlorinated biphenyls (PCBs). The analytical results found detections of DDE and DDT, PCBs, and several metals that were below levels of concern to human health based on the use of the site as a floodplain area, but of possible concern to ecological health.

As part of the Phase II ESA along the channel between Raley Blvd and Vinci Ave, 7 soil borings taken to 12 feet below ground surface at 4-foot intervals, 7 surface soil samples, two composite samples from stockpile sites, and two surface water samples were tested for metals, mercury, organochlorine pesticides, and PCBs. Arsenic was the only analyte detected above the U.S. Environmental Protection Agency regional screening levels and California DTSC screening levels for commercial/industrial soil. However, arsenic in California is known to have higher background concentrations than the screening levels.

##### ***American River Mitigation Site***

The ARMS is located on the northern bank of the American River at River Mile 1.3 within the American River Parkway. The property was initially used for agriculture beginning in the 1930s until approximately 1966 when the Urrutia family began sand and gravel operations on a portion of the property. By 1997, historic excavation activities resulted in the creation of an approximately 60-acre pond. The property was later used for sorting, distributing, and recycling soil and construction debris followed by a concrete pumping business operation (CVRWQCB 2023). The western portion of the site contains a garage and shop and three shipping containers. The property is used to stage concrete pumping equipment used by the property caretaker. The southwest corner of the property contains a wooded area. There are approximately 10 stockpiles of construction debris located east and south of the lake.

An environmental consultant was contracted by the Sacramento Area Flood Control Agency (SAFCA) to conduct environmental due diligence in preparation of SAFCA's planned acquisition of the property. The property has undergone a Phase I and II Environmental Site Assessment (ESA), as well as Geotechnical Investigation.

A Phase I ESA conducted in October 2022 identified the 10 soil stockpiles, petroleum storage associated with two aboveground storage tanks (ASTs), storage of auto batteries on the ground, as well as historical conditions such as a former polychlorinated biphenyl (PCB)-containing transformer explosion, use of the property as an unpermitted construction debris site for several decades, the excavation of topsoil/aggregate from the manmade lake, and placement of fill into the pond.

Phase II ESA activities and geotechnical investigations were conducted in 2022 and 2023 and included geophysical scanning of the land portions of the property, bathymetry of the manmade lake, collection of stockpile and surface soil samples, geotechnical and environmental borings, sediment samples including grid sampling, deep boring sampling, and targeted sampling, groundwater sampling, and surface water sampling (Geosyntec 2023). Below is a summary of data results based on site locations which include Northern Area, Northeast Area, Embankment Area, Operations Area, and the Pond (Geosyntec 2023).

- In the *Northern Area*, which includes the entire area north of the onsite pond, 16 soil borings were advanced. The majority of the borings show no impacts from previous land uses. Lead was reported at slightly elevated concentrations in two samples, no other constituents of concern were reported.
- In the *Northeast Area* where buried and exposed rubble had been observed along the bank of the pond, six soil borings have previously been advanced. TPH-d, naphthalene and lead were reported at elevated concentrations in select soil samples and borings.
- In the *Embankment Area*, south of the pond between the site and the American River, 27 borings were advanced on the Embankment Area and eastern bank, and 7 samples were collected from surface stockpiles. Constituents of concern were not reported at concentrations above screening levels in samples collected from the stockpiles. Naphthalene, TPH-d, chromium, and lead were reported at concentrations above screening levels in a few of the 27 borings. Unfiltered groundwater samples were also collected in this area. Arsenic, barium, and nickel were reported at concentrations above the MCLs in one sample, naphthalene was reported in two of the groundwater samples, and TPH-d was reported in the four groundwater samples.
- In the *Operations Area* located on the western bank and consisting of consists of an off-site residence with three and a half shipping containers, vehicles, equipment and materials storage, half a building used as a maintenance shop, ASTs, the domestic groundwater supply well, six borings were advanced in this area. Five of the 6 borings were not advanced deeper than 2 feet bgs, with one boring advanced to 15 feet bgs. TPH-d, TPH-mo, and lead were reported at elevated concentrations near the former ASTs. Lead, mercury, and zinc were reported at elevated concentrations in the 15-foot sample. Arsenic was reported in an unfiltered water sample collected from the on-site well.

- In the *Pond Area*, from the results of bathymetric surveys it does not appear that the elevation of the pond bottom has significantly changed. Sediment and surface water samples have been collected from the pond. Constituents of concern have generally not been reported at elevated concentrations in surface water or sediment, with the exception of some soluble metals using modified elutriate testing. Based on results of a modified elutriate test (MET), chromium exceeds CTRs in two of 12 samples, and mercury exceeds levels in three of 12 samples. Methylmercury was reported in surface water samples.

SAFCA is currently conducting additional Phase II ESA activities to scope a Corrective Action Plan (CAP) for the site. The CAP will determine actions that must be taken to remove the potential for surface or groundwater impairments or risk to future sensitive receptors. Additional site investigations include soil borings, test pits, surface samples, and groundwater samples in locations that have showed elevated concentrations of constituents of concern. SAFCA will be required to achieve closure of the listing prior to use of the site for habitat restoration.

#### **4.3.8.2 Environmental Effects**

##### **4.3.8.2.1 No Action Alternative**

Construction activities would involve use of hazardous materials such as fuels, oils and lubricants, and cleaners common to construction projects. Contractors will be required to use, store, and transport these materials in compliance with Federal, State, and local regulations during project construction. With the implementation of mitigation measures discussed in the ARCF GRR FEIS/EIR Section 3.17.6, effects from hazardous materials due to equipment operation will be less than significant.

The project is being constructed according to the original footprint described in the ARCF GRR FEIS/EIR and does not include the portions of Magpie Creek between Vinci Avenue and Dry Creek Road or the new levee east of Raley Boulevard. On the Lower American River, the refined erosion protection site locations and tree scour work on Contract 3B, and the berm and associated bike trail reroute on Contract 4A will not be constructed. The SRMS and ARMS would not be constructed. Without the additional improvements to the flood protection infrastructure, the project area will still be vulnerable to flooding and the potential for release of hazardous materials caused by flooding would exist. This would include hazardous and toxic waste. The potential for the spread of hazardous wastes from both new and existing sites would be a significant effect under the No Action Alternative and no mitigation would be possible.

Under the CEQA No Project Alternative, the remaining components of the Proposed Action from the ARCF GRR FEIS/EIR would not be constructed, as well as the Proposed Action from this SEIS/SEIR. There would be no potential releases of hazardous materials as a result of construction activities and the study area would continue to be at risk of flooding due to levee failure or overtopping. The potential for adverse effects to hazardous materials sites will exist if a flood were to occur, with the risk of release of hazardous materials into the surrounding environment. The ARCF GRR FEIS/EIR found that effects of the No Project / No Action Alternative would be significant.

### 4.3.8.2.2 Proposed Action

**Table 4.3.8-1. Summary of Hazards and Hazardous Materials Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.8-a	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.8-b	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, including hazards associated with existing contaminated soils, asbestos, or existing contaminated groundwater during dewatering activities.	Less than Significant with Mitigation Incorporated	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
3.8-c	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	No Impact	No Impact
3.8-d	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.	Less than Significant	No Impact
3.8-e	For a project located within 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area.	No Impact	No Impact
3.8-f	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than Significant with Mitigation Incorporated	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated.

**Table 4.3.8-2. Hazards and Hazardous Materials Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
3.8-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River 4B, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	None	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.8-b	MCP, ARMS	GEO-1, HAZ-1	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
3.8-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Contract 3	GEO-1, HAZ-1	Less than Significant	Short-term and Negligible Effects that are Less than Significant

Impact Number	Project Component	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
3.8-b	Piezometer Network	HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated
3.8-b	SRMS	GEO-1, HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Minor Effects that are Less than Significant with Mitigation Incorporated
3.8-d	MCP	None	Less than Significant	No Impact
3.8-d	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Contract 3, SRMS	None	No Impact	No Impact
3.8-d	ARMS		Less than Significant	No Impact
3.8-f	MCP	TRANS-1	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
3.8-f	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Contract 3, SRMS, ARMS	TRANS-1, HAZ-2	Less than Significant with Mitigation Incorporated	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated.
3.8-f	Piezometer Network	N/A	No Impact	No Impact

A more detailed description of the impacts of the Proposed Action to hazards and hazardous materials and details of Mitigation Measures GEO-1, HAZ-1, HAZ-2 and TRANS-1 is available in Appendix B Section 3.8 “Hazardous and Hazardous Material”.

The construction of the Proposed Action would require the transport, storage, and use of fuels, oils, and lubricants for equipment maintenance and operation. These materials are not classified as acutely hazardous, and the project would not require transport or use of large quantities of these materials beyond what would be required to operate construction equipment. This would follow Federal, State, and local regulations and effects from using these materials would be less than significant with mitigation.

***American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3***

The American and Sacramento River sites are not known to be associated with sites containing hazardous materials, and release of hazardous materials into the environment from these locations is unlikely. With implementation of the mitigation measures discussed below, effects from hazardous materials along the American and Sacramento Rivers would be less than significant. Construction of these project components, including material hauling and closure of the Watt Avenue boat access, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing Mitigation Measures TRANS-1 (previously adopted) and HAZ-2 (new mitigation measure), which would require

coordination with emergency responders on site closures and traffic, including the Watt Avenue access.

### ***Magpie Creek Project***

Soil and water testing was conducted as part of Phase II ESAs in the floodplain parcels and between Raley Boulevard and Vinci Avenue. The samples were collected in the area where earthwork is required on either side of Raley Boulevard and cover the footprint for the creek widening and realignment. The results did not find hazardous materials at concentrations, which would require disposal of contaminated materials from the site.

The testing along the portion of Magpie Creek between Raley Boulevard and Vinci Avenue involved collection of soil samples from the surface to 12 feet in depth. Contaminants were not detected above USEPA regional screening levels or California DTSC screening levels for industrial soil. Based on these results, it is unlikely that hazardous materials would be released into the environment from the new canal alignment and widening.

The new levee planned east of Raley Boulevard is located on land bordering the former McClellan Airforce Base. The MCP would involve placing of materials hauled onto the site and would not require excavation of existing materials from this area, therefore the risk of releasing hazardous materials into the environment from contaminated soil is low.

If contaminated soil or water are suspected, mitigation measures would be required to bring hazards due to release of hazardous materials to the less than significant level. These measures include testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, they would need to be disposed of in accordance with applicable regulations.

Construction of the MCP, including material hauling and temporary closure of Raley Boulevard, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing Mitigation Measure TRANS-1, which would require coordination with emergency responders on road closures and traffic.

### ***Sacramento River Mitigation Site***

No work is planned at decommissioned landfill located on the eastern side of Grand Island. There would be a low risk of releasing hazardous materials into the environment from this area by avoiding the landfill. Excavating soils to create channels could expose previously buried hazardous materials could release those materials into the adjacent waterways, leading to significant impacts. Implementation of previously adopted Mitigation Measure HAZ-1 would bring this impact to less than significant.

Construction of the SRMS, including material hauling, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing previously adopted Mitigation Measure TRANS-1, which would require coordination with emergency responders on road closures and traffic.

### ***American River Mitigation Site***

The ARMS was formerly used for gravel mining. Metals and petroleum hydrocarbons that have been identified in soil and groundwater samples at the site, however, SAFCA is responsible for the costs of cleanup and response to hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9675) prior to providing the site to USACE. Nevertheless, construction of the ARMS would involve excavation of soil which could expose previously buried hazardous materials, which could be a significant impact since the purpose of the work is to restore connectivity to the American River. Implementing previously adopted Mitigation Measure HAZ-1 would reduce this impact to less than significant.

Construction of the ARMS, including material hauling, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing Mitigation Measure TRANS-1, which would require coordination with emergency responders on road closures and traffic.

#### ***Piezometer Network***

Piezometer installation would include a drilling process resulting in the production of soil cuttings and purge water, which will be captured so that the water does not spill onto the site. However, there is the potential that contaminated soil, or groundwater could be brought to the surface through the drilling process which could result in a significant impact. Implementation of previously adopted Mitigation Measure HAZ-1 would bring this impact to less than significant. Constructing the piezometer network would not include road closures or substantial hauling. There would be no impact on emergency response or evacuation routes.

#### **4.3.8.2.3 Alternatives**

A description of the impacts of the Alternatives on Hazardous Materials and Waste is available in Appendix B.

#### ***Alternatives 3a through 3d***

Alternative 3a through 3d include an alternative design for improvements to the American River 4A Project Component. In Alternative 3a, a landside berm would be constructed instead of a waterside berm. In Alternative 3b the bike detour would follow parallel to the railroad to the existing location of the bike trail instead of going under the railroad. In Alternative 3c, the bike route would be rerouted a short distance through an existing wetland. In Alternative 4d, the bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento River Contract 3, Magpie Creek, Sacramento River Mitigation, Piezometer Network, and American River Mitigation) would have the same effects as the Proposed Action. Hazards and hazardous materials effects from these alternatives would be the same as for the Proposed Action.

#### ***Alternative 4a (CEQA-Only)***

Alternative 4a includes a design for the American River Mitigation area that retains a 30-acre portion of the existing man-made pond, while channels would be constructed on 54 acres of floodplain on the eastern portion of the site. The effects to hazards and hazardous materials

would be similar to what was discussed in the Proposed Action, but this alternative does not incorporate avoidance of buried debris at the ARMS into the design. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, Piezometer Network, and Sacramento River Mitigation) would have the same effects as the Proposed Action.

#### *Alternative 4b (CEQA-Only)*

Alternative 4b includes a design for the American River Mitigation area that retains a 20-acre portion of the existing man-made pond. Restored habitat would be constructed on the remainder of the Urrutia property, and the proposed habitat was designed to avoid or cap the known hazardous materials present on the property. The effects to hazards and hazardous materials would be similar to what was discussed in the Proposed Action. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, Piezometer Network, and Sacramento River Mitigation) would have the same effects as the Proposed Action.

#### *Alternatives 5a and 5c*

Alternatives 5a and 5c include an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, Piezometer Network, and Sacramento River Mitigation) would have the same effects as the Proposed Action. Conservation Bank Credits and/or credits will be purchased, or funds would be provided for the Sunset Pumps Project.

There would be no new construction or disturbance associated with Alternatives 5a or 5c, as existing mitigation banks or a project undergoing separate NEPA and CEQA review would be used. Consequently, there would be no impacts related to hazardous materials, which would be reduced significance compared to the Proposed Action.

#### *Alternative 5b*

Alternative 5b includes an alternative strategy for the Sacramento River Mitigation project component, which included possible use of Watermark Farms to construct habitat mitigation for the Sacramento River. All other project components (American River 3B, American River 4A, Sacramento River, Magpie Creek, American River Mitigation, and the Piezometer Network) would have the same effects as the Proposed Action. Hazards impacts would be similar to the Proposed Action except that the Watermark Farms site would potentially impair emergency response or evacuation due to construction in proximity to South River Road, including potential lane or road closures during construction and realignment of the road.

## 4.4 Ecological and Biological Resources

The following biological resources analysis is presented by contract due to the differing habitat and resource types within each construction footprint. For a more detailed analysis of biological resources, refer to Appendix B.

### 4.4.1 Vegetation and Wildlife

Below is a summary of the Vegetation and Wildlife analysis. Please refer to Appendix B, Section 4.1 for the detailed analysis and Appendix D for existing habitat maps.

#### 4.4.1.1 Existing Conditions

##### *American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B*

The American River Parkway contains many vegetation types including riparian forest, oak woodland, open water, ruderal herbaceous, wetlands, and limited agriculture. Along the river channel vegetation is primarily considered SRA habitat. Trees adjacent to the channel are mainly valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), and white alder (*Alnus rhombifolia*), with a thick understory of vines, berry bushes, and willows. The American River is bordered by commercial and residential neighborhoods on both the north and south sides, along with various open space areas. Although the constructed levee system and surrounding infrastructure have been modified, most of the area's native vegetation types and habitats, remnant stands of native vegetation are present. The American River Parkway Plan details how the vegetation in the Parkway should be protected, enhanced, and expanded, where appropriate.

##### *American River Mitigation Site*

The proposed ARMS was not analyzed in the 2016 ARCF GRR FEIS/EIR. It is located on the right bank of the LAR, approximately 1 mile upstream from the Sacramento and LAR confluence. The site is a former sand and gravel mine; thus, the most prominent feature of the ARMS is an approximately 58-acre man-made pond located approximately 400 feet from the river's edge. The man-made pond is perennially filled with water due to groundwater connection with the LAR. The land surrounding the pond is characterized mainly by riparian forest/scrub, with some ruderal herbaceous/grassland vegetation.

##### *Sacramento River Erosion Contract 3*

The Sacramento River Erosion Contract 3 area consists primarily of riparian and SRA habitat on the left (east) bank of the Sacramento River. It is characterized by mature, well-established trees such as Fremont cottonwood and valley oak with a riparian shrub layer of smaller trees and shrubs, such as sandbar willow (*Salix exigua*) and Himalayan blackberry (*Rubus armeniacus*). There are intermittent locations along the water line with no trees due to rock revetment. The levees on the Sacramento River are immediately adjacent to the river channel with a few short stretches that have small benches. Due to the urban development adjacent to the levees in this area, wildlife is limited to small mammals and various avian species. Domestic animals from residents are also often seen along the levees in this area of the project.

##### *Sacramento River Mitigation Site*

The proposed SRMS was not analyzed in the 2016 ARCF GRR FEIS/EIR. It is as an active Dredged Material Placement Site (DPMS) managed by USACE located in the Sacramento-San Joaquin Delta at the confluence of Cache and Steamboat Sloughs. The SRMS is composed of a large flat basin with herbaceous cover in the northern half being almost completely dominated by perennial pepperweed (*Lepidium latifolium*). Stands of various riparian trees and shrubs, such as sandbar willow, red willow (*Salix laevigata*), coyote brush (*Baccharis pilularis*), Fremont cottonwood, black locust (*Robinia pseudoacacia*), blue elderberry (*Sambucus nigra* ssp. *cerulea*), and northern California black walnut (*Juglans hindsii*) are also present, particularly in the eastern portion of the SRMS and around the levee perimeter. Cattle grazing is evident throughout the site; however, the SRMS has predominantly remained undisturbed for over 20 years (Coast Ridge Ecology 2021).

### ***Magpie Creek Project***

The MCP work area is located in the central portion of the Sacramento Valley on the valley floor in the floodplain of Magpie Creek. The project area consists of vacant land, a portion of which was formerly in rice production. The project area has historically been disked and mowed and there is evidence of off-road vehicle use and illegal dumping. Land uses in the surrounding area are primarily light industrial, with some areas of rural residences. The flora of the project area is typical of “old field” sites in the Sacramento Valley. These sites have been historically disturbed by agriculture or other activities, and most of the vegetation cover consists of nonnative species. Vegetation in the MCP is composed primarily of grasses and forbs, with emergent wetland vegetation and small riparian trees along the stream banks. A few Fremont cottonwoods and Goodding’s black willow trees (*Salix gooddingii*) are present in the work area, but nearly 60% of the plant taxa documented during field surveys in 2018 were nonnative (ICF 2018).

**Table 4.4.1-1. Existing Habitats and Land Cover Types (acres)**

	American River Erosion Contract 3B and 4B	American River Erosion Contract 4A	ARMS	Sacramento River Erosion Contract 3	SRMS	MCP
Vernal Pools	-	-	-	-	-	0.22
Riparian Forest/Scrub	51.32	65.23	14.53	5.04	91.37	2.6
Rural Herbaceous/Grassland	71.18	99.51	44.9	1.31	2.80	37.43
Wetlands	-	18.65	2.5	0.00	47.34	2.40
Riverine/ Open Water	12.07	4.02	55.4	20.70	-	-
Agricultural	-	-	-	-	7.67	13.02
<b>TOTAL</b>	<b>134.57</b>	<b>187.71</b>	<b>117.33</b>	<b>27.05</b>	<b>149.18</b>	<b>55.67</b>

AR C3B – Riparian Forest/Scrub composed of Native and Nonnative scrub and woodland. LAR C4A – Riparian Forest/Scrub composed of Native and nonnative scrub and woodland. ARMS - Riparian Forest/Scrub is composed of Native and nonnative scrub and woodland. SRE C3 – Riparian Forest/Scrub is composed of Fremont cottonwood forest, sandbar willow thicket, and valley oak woodland. SRMS – Riparian Forest/Scrub is composed of Hardwood Woodland and Scrub. Totals are Estimates.

#### **4.4.1.1.1 Non-native Invasive Species**

Section 3.6, “Vegetation & Wildlife,” of the ARCF GRR FEIS/EIR describes the invasive non-native plant species occurring in the project site. Areas dominated by non-native vegetation

include abandoned, fallow, and active agricultural fields; borrow and staging areas; historic mine tailings; levee slopes; and areas subject to fire, frequent flood inundation, or scour. Non-native weeds dominate some areas, especially areas that have been previously disturbed like levee slopes and previous construction sites. Invasive plants have also naturalized in nearby riparian, woodland, grassland, and agricultural plant communities.

#### **4.4.1.1.2 Sensitive Natural Habitats**

Sensitive natural plant communities are vegetation cover types that are especially diverse, regionally uncommon, or of special concern to local, state, and Federal agencies. Riparian, Waters of the U.S. (riverine, wetlands and vernal pools), and mixed-oak communities qualify as sensitive natural communities, while the riparian herbaceous community generally does not (CDFW 2022).

#### **4.4.1.1.3 Wildlife Corridors**

The California Wildlife Connectivity and Climate Adaptation Act of 2024 defines a wildlife corridor as a habitat linkage that joins two or more patches of suitable habitat, allowing species to move from one patch to another. Habitat connectivity is described as the connectedness of habitat for a particular species, while landscape connectivity can be defined as the human perception of native vegetation cover connectedness in a landscape (Fischer and Lindenmayer 2007). Permeability of wildlife corridors is a measure of structure – hardness of barriers, connectedness of natural cover, and arrangement of land uses (Anderson & Clark 2012<sup>3</sup>). Roads, development, dams, and other structures create resistance that interrupts or redirects movement and, therefore, lowers the permeability. These definitions in combination with The Nature Conservancy’s Resilient Land Mapping Tool<sup>4</sup> Local Connectedness dataset, and CDFW’s Terrestrial Connectivity, Areas of Conservation Emphasis (ACE) dataset<sup>5</sup> were used to inform this analysis.

#### **4.4.1.2 Environmental Effects**

##### **4.4.1.2.1 No Action Alternative**

The No Action Alternative is the buildout of the authorized project, the Recommended Plan from the ARCF GRR FEIS/EIR (see Section 3.4 for detailed description). The SRMS and ARMS mitigation sites would not be built, and site conditions would remain as they are now. ARMS will remain a man-made pond with no public access. In addition, the SRMS will remain an active Dredged Material Placement Site managed by USACE. However, USACE will still be required to mitigate for ARCF 2016 Project habitat impacts by other means, such as purchasing mitigation bank credits or construction mitigations sites elsewhere.

##### *Valley Foothill Riparian Habitat*

Most valley foothill riparian habitat in the study area (hereafter referred to as “riparian habitat”) Approximately 65 acres of riparian habitat would be removed throughout the lower American River, 71 acres throughout the Sacramento River, and zero acres around Magpie Creek. The removal of riparian habitat will be mitigated in accordance with the CAR (or in accordance with the Section 7 ESA Biological Opinions if the area is also considered VELB habitat) by planting new riparian habitat onsite or at USFWS approved mitigation sites.

Section 3.3.4 from the ARCF GRR FEIS/EIR states that the launchable rock trench measure would allow for the protection of the existing SRA habitat by constructing erosion protection measures against the waterside levee toe. This measure will require the removal of upland riparian scrub habitat and grasses close to the levee to construct the trench. However, this measure will also incorporate mitigative features through the installation of plantings on the surface of the trench. Once the vegetative features reached full growth, the rock trenches will provide a natural appearance to the site with the affected habitat values fully restored.

#### *Shaded Riverine Aquatic*

The analysis in the ARCF GRR FEIS/EIR determined that constructing new bank protection features would involve launchable rock trenches created by removing grasses, shrubby vegetation, riparian woodland, and instream woody material, resulting in the loss of 80,825 linear feet of SRA habitat, a key component of salmonid habitat. SRA is defined as the unique near shore area, where the water meets the land, it includes over hanging and aquatic vegetation, substrate, food availability, shelter and temperate. Therefore, SRA is no longer broken down into a separate habitat type, it is incorporated into the Riparian Habitat and Riverine habitat types. The impacts on SRA habitat are addressed in the ESA Section 7 Biological Opinions.

#### *Wetland*

The analysis in the ARCF GRR FEIS/EIR determined that construction of Alternative 2 would impact 0.40 acre of wetland habitat. The impacted wetlands will be mitigated for in accordance with the CAR and CWA either onsite, offsite habitat creation or through the purchase of service approved mitigation bank credits.

#### *Oak Woodland*

The analysis in the ARCF GRR FEIS/EIR determined that construction of Alternative 2 would impact 2 acres of non-riparian oak woodland. The impacted oak woodland would be mitigated in accordance with the CAR either onsite, through offsite habitat creation, or through the purchase of service approved mitigation bank credits.

#### *Ruderal Herbaceous*

The vegetation analysis in the ARCF GRR FEIS/EIR demonstrated that construction of Alternative 2 would impact approximately 135 acres of ruderal herbaceous habitats. Ruderal herbaceous vegetative cover was defined as levees, patrol roads and open lands with no trees. The disturbed areas would be returned to pre-project conditions to the maximum extent feasible. As a result, impacts to these areas would be less than significant with mitigation.

### **4.4.1.2.2 Proposed Action**

A more detailed description of the impacts of the Proposed Action to vegetation and wildlife and details of Mitigation Measures VEG-1, VEG-2, BIRD-1, VIS-2, and WATER-1 are available in Appendix B Section 4.1 “Vegetation and Wildlife”.

## *Proposed Action*

In general, construction of the Proposed Action would result in the loss of riparian habitat (Please see Table 4.4.1-4 Table for acreage). This loss of habitat would cause a significant, temporary impact. With implementation of Mitigation Measures VEG-1, VEG-2, and BIRD-1, the impact to riparian habitat would be reduced to a less-than-significant level. In addition, all construction activities for the Proposed Action could interfere with local movement of native resident or migratory wildlife species. Equipment and personnel movement and vegetation removal during construction could interfere with the movement of terrestrial wildlife species; however, these activities are not expected to result in substantial effects on the movement of these species because they are mobile and can move away from construction activities to unaffected areas.

In addition, noise from construction of the Proposed Action could temporarily alter the foraging patterns of resident wildlife species but is not anticipated to substantially interfere because these species could move to nearby unaffected habitat. Night work can disrupt wildlife and has been shown to increase juvenile fish predation in rivers. No night work would be conducted within 1000 feet of the American or Sacramento River. Implementing Mitigation Measure VIS-2: “Minimize Disturbance to Nocturnal Wildlife” would reduce this effect to less-than-significant.

The location and use of staging areas, haul routes, borrow site, and spoils disposal are described in Chapter 2. ‘Description of Project Alternatives.’ Staging areas would be primarily open land characterized by ruderal herbaceous habitat, landscaping, or developed land; some with sparse trees or bounded by woodland. Tree removal and trimming, minor grading, paving, and adding aggregate base could occur at staging areas and along haul routes. Staging areas and haul routes would be restored to pre-project conditions. This may include reseeding with native grasses and forbs, planting with native vegetation, or working with recreational agencies to determine which trees would be removed and replanted. Some access ramps will be retained to allow access for the maintaining agency.

Implementation of flood protection activities by public agencies does not require a tree removal permit pursuant to Section 12.56.080 (F) of the City of Sacramento Municipal Code. Therefore, there would be no conflict with the City of Sacramento Tree preservation policy or ordinance. The American River Parkway Plan states, in Policy 4.12, that “Vegetation in the Parkway should be appropriately managed to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood protection to the heavily urbanized floodplain along the lower American River and in a manner that preserves the environmental, aesthetic, and recreational quality of the Parkway.” The Sacramento County Tree Preservation Ordinance requires “A Tree Pruning or Tree Removal Permit...to prune or remove any public tree and certain private trees.” Project Partners would consult with the County Parks, which has jurisdiction over tree removal work in the American River Parkway, to comply with the county ordinance.

All contract locations would require ongoing O&M. Routine O&M activities by the NFS or LMA would consist of inspections, mowing or herbicide, burrowing rodent control, slope repair, patrol road reconditioning, and ground water level monitoring. A vegetation management plan covering short-term, long-term and adaptive management will be developed in coordination with

USFWS and NMFS to ensure that native riparian plantings installed within the planting benches are protected, managed, monitored, and maintained following installation and ensure that they are on an ecologically sustainable trajectory. Invasive plant species incursions would be controlled as early as possible to prevent wide- scale establishment and minimize the use of control efforts such as pesticide usage.

**Table 4.4.1-2. Summary of Vegetation and Wildlife Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	Less than Significant with Mitigation Incorporated.	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated.
4.1-b	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	Less than Significant with Mitigation Incorporated.	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.
4.1-d	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	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
4.1-e	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	Less than Significant with Mitigation Incorporated	Negligible Effects that are Less than Significant with Mitigation Incorporated
4.1-f	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	No impact	No Impact

**Table 4.4.1-3. Vegetation and Wildlife Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance	NEPA Effects Determination
4.1-a, 4.1-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and 4B, Sacramento River Erosion Contract 3, MCP, Piezometer Network	VEG-1, VEG-2, BIRD-1, VIS-2	Less than Significant with Mitigation Incorporated.	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated.

Impact Number	Project Component	Mitigation Measure	CEQA Significance	NEPA Effects Determination
4.1-c	American River Erosion Contract 4A	VEG-1	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.
4.1-c	American River Erosion Contract 3B North and South and American River Erosion Contract 4B, MCP	VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Negligible with Mitigation Incorporated.
4.1-c	American River Erosion Contract 4A, Sacramento River Erosion Contract 3	VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.
4.1-c	MCP	VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Minor with Mitigation Incorporated.
4.1-c	SRMS, ARMS	N/A	Short-term Less than Significant, Long-term No effect	Short-term Moderate effects that are Less than Significant; Long-term No effect
4.1-c	Piezometer Network	N/A	Less than Significant	Short-term and long-term less than Significant
4.1-d	American River Erosion Contract 3B North and South, and 4B, Sacramento River Erosion Contract 3, MCP	WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
4.1-d	American River Erosion Contract 4A	WATERS-1	Less than Significant with Mitigation Incorporated	Less than Significant with Mitigation Incorporated
4.1-d	SRMS, ARMS	WATERS-1	Less than Significant with Mitigation Incorporated	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated; Long-term negligible effects
4.1-d	MCP	WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Negligible Long-term Effects that are Less than Significant with Mitigation Incorporated
4.1-d	Piezometer Network	N/A	No Impact	No Effect
4.1-e	American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, ARMS, Piezometer Network	VEG-2	Less than Significant with Mitigation Incorporated	Negligible Effects that are Less than Significant with Mitigation Incorporated.
4.1-e	Sacramento River Erosion Contract 3, MCP, SRMS	N/A	No Impact	No Impact
4.1-f	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, Piezometer Network	N/A	No Impact	No Impact

### ***American River Erosion Contract 3B North and South, and 4B***

The American River Parkway contains many vegetation types including riparian, oak woodland, open water, ruderal herbaceous, wetlands, and limited agriculture. Along the river channel, vegetation is primarily considered SRA habitat. The Proposed Action will result in substantial tree removal to construct levee improvements, an estimated 675 to 715 trees will be removed at American River Erosion Contract 3B. To limit the number of trees removed, each tree will be inspected and kept in place when feasible. To replace a portion of the vegetation lost due to the installation of erosion protection, the design includes soil-filled planting benches incorporated into the rock revetment in areas where the slope and space allows riparian vegetation to reestablish. Bank protection generally consists of soil filled revetment on the slopes to allow for revegetation on slopes that are outside the vegetation free zone. Based on the current design, bank protection features will be revegetated post-construction to the greatest extent practicable. In general, the launchable toe with planting bench would be used in place of the berms for bank protection described in the 2016 ARCF GRR FEIS/EIR. There would be no impact to state or federally protected wetlands.

American River Erosion Contracts 1, 2, and 3A have already impacted 33.14 acres of riparian habitat; thus, the total riparian impact for completion of all American River erosion contracts is anticipated to be 62 acres, which is below the 65 acres of impact that was estimated in the ARCF GRR FEIS/EIR. This results in a significant, unavoidable, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when compensatory plantings have fully matured, but a negligible long-term impact with mitigation incorporated (described in detail in Appendix B 4.1 “Vegetation and Wildlife”).

### ***American River Erosion Contract 4A***

The berm design for American River Erosion Contract 4A requires the site to be regraded, which will result in a site that would not be favorable for onsite plantings of woody vegetation. This would result in a significant, unavoidable, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when compensatory plantings have fully matured. Less than significant long-term impact with mitigation incorporated (described in detail in Appendix B 4.1 “Vegetation and Wildlife”).

The construction of the berm would impact a wetland (estimated acres shown in Table 4.4.1-4Table ). Appropriate compensation would occur through the purchase of credits at an USFWS approved mitigation bank. With the implementation of this mitigation, effects to wetlands would be less than significant.

### ***Sacramento River Erosion Contract 3***

The Proposed Action would increase impacts to riparian habitat when compared to the No Action Alternative (Alternative 2 of the FEIS). Page 124 of the ARCF GRR FEIS/EIR states that approximately 930 trees on the lower half of the levee would be conserved by placing rock around them. But design refinements for this area would require all trees to be removed within the rock placement footprint. Designs would include planting benches similar to those described for the American River, but due to the lack of a waterside bench in most places along the Sacramento River, there would not be enough space in most locations. There would be no woody

vegetation or trees planted in the vegetation free zone on the water side of the levee, which is approximately 15 feet from the levee toe. There would be no impact to state or Federally protected wetlands. This would result in a significant, unavoidable, permanent impact from the loss of vegetation and wildlife habitat within the erosion rock placement footprint. Long-term effects are less than significant with mitigation incorporated.

### *Magpie Creek Project*

The Design Refinements would impact 2.6 more acres of riparian habitat than stated in the authorized Alternative 2 in the ARCF GRR FEIS/EIR. In the location of the canal realignment, vegetation has grown due to the lack of required maintenance. The canal would be cleared, resulting in a permanent long-term loss of vegetation. This loss would result in negligible long-term impact through mitigation with compensatory plantings offsite. Installing the culverts and associated staging area at Rio Linda Boulevard would impact the southeast corner of a 5.54-acre seasonal wetland but would not affect the hydrology of the remaining wetland area. In addition, there is a 2.4-acre wetland east of Raley Boulevard that would be affected by the realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.40 acres of this wetland. However, construction of the realignment would not significantly alter the area's topography relative to the remaining 2.4-acre wetland and impacts to local hydrology would be a significant, unavoidable, permanent impact that would be adequately reduced through the purchase of mitigation bank credits.

### *Sacramento River Mitigation Site*

This site is located in the Sacramento-San Joaquin Delta and is comprised of riparian forest, riparian scrub-shrub, ruderal herbaceous/grassland, and wetlands. Habitat restoration at this location would focus on Shaded Riverine Aquatic (SRA) habitat to benefit, juvenile salmonid rearing, Valley Elderberry Longhorn Beetle (VELB), and yellow-billed cuckoo. The construction of this habitat would include breaching the existing levee, grading to create channels, bank protection stabilization and vegetation planting. The levee degrade and connection to adjacent sloughs and rivers would impact open water, wetland, riparian and ruderal habitats. Prior to the start of construction, the SRMS would undergo additional surveys to refine what mitigation would be created. Additional coordination with the USFWS and NMFS will occur at that time. USACE does not currently have estimates for the habitat acreage created onsite but will have the information available at the final document. USACE would mitigate for riparian, and wetland impacts onsite. Any trees planted onsite would take 8 to 10 years to mature to provide the same value as those removed; therefore, this impact is significant in the short-term, but no effect in the long-term because these sites mitigate for project-wide impacts.

The estimated acres of wetlands expected to be impacted is shown in Table 4.4.1-4Table . The existing fringe wetlands around the SRMS would be impacted when the levee is degraded to create the flow through side channels, however the channels would be planted with similar vegetation and would provide similar habitat in greater amounts than what is being impacted. The open water on site would be impacted by the channels, however the land around the channels would be graded to accommodate different water elevations of both tidally influenced and seasonally influenced wetlands. The SRMS would result in a net benefit of wetland and riverine functions and services. With the implementation of this mitigation, which was

previously adopted for the ARCF 2016 Project, effects on aquatic resources would be less than significant.

### *American River Mitigation Site*

This site is comprised of freshwater emergent wetland, open water, riparian forest/scrub, and valley and foothill grassland. ARMS would adapt existing conditions to restore, enhance, and maximize habitat for three focal species: salmonids, YBCU, and VELB. ARMS would restore connection to the LAR, include a diverse planting palette, and incorporate habitat benches that would restore floodplain habitat for salmonids at various elevations. In addition, the site would continue to accommodate flood events and overflow from the LAR main channel and Steelhead Creek. ARMS would emphasize restoration to native floodplain wetland and riparian habitats, consideration of river dynamics, and adaptive management of the features as described in the Parkway Plan and NRMP (HDR 2023).

In the post-project condition, it is anticipated that there will be a net increase in freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, while a reduction in grassland/upland and pond habitats would occur (HDR 2023). This would convert existing upland and open water habitat on the land side of a natural levee to low-flow channels with a wetland fringe and connected floodplain. Approximate habitat acres are estimated at the 35% design level are: 16.2 ac of freshwater emergent, 0.0 acres pond, 55.4 acres riparian forest, and 28.2 acres of valley-foothill grasslands. These estimates will be refined by the final draft. The embankment degrade, and connection to the American River would impact open water, riparian and ruderal habitats. USACE would mitigate for riparian, and wetland impacts onsite. Any trees planted onsite would take 8 to 10 years to mature to provide the same value as those removed; therefore, this impact is significant in the short-term, but no effect in the long-term because these sites mitigate for project-wide impacts.

### *Piezometer Network*

Approximately 100 piezometers would be installed at various locations along each levee with piezometers on either the levee crown or near the landside levee toe. This is a fairly low impact activity because of the small size of the piezometers, 6 inches in diameter with an associated cement pad and housing box, and their proposed location on the levee crown or near the landside levee toe. Limited tree removal and vegetation clearing may be necessary to install the piezometer or access the drilling location, but there would be no impact to wetlands or other aquatic habitat. Installation and maintenance of the piezometers and associated features would result in a less-than-significant impact over the short-term and long-term.

The NEPA Design Refinements would be identical to the Proposed Action because the 2016 ARCF GRR FEIS/EIR did not include analysis of a piezometer network. Therefore, impacts of the NEPA Design Refinements are the same as described previously for the CEQA Impacts. There would be a less than significant, short-term impact and long-term, negligible impact on riparian habitat

**Table 4.4.1-4. Estimated Vegetation Impacts of the Proposed Action and Alternatives**

Location	Valley Foothill Riparian (acres)	Ruderal Herbaceous/ Grassland (acres)	Wetland (acres)	Riverine/Open Water (acres)	Agricultural (acres)	Urban/ Developed (acres)
American River Erosion Contract 3b	18.75	7.0	-	6.0	-	3.0 Ditch: 0.19
American River Erosion Contract 4A – Proposed Action	7.95	6.70	Forested Wetland: 0.60	-	-	3.70
American River Erosion Contract 4A – Alt 3a	0.41	-	Forested Wetland: -	-	-	0.54
American River Erosion Contract 4A – Alt 3b	5.88	6.87	Forested Wetland: 0.60	-	-	3.16
American River Erosion Contract 4A – Alt 3c	Parkway detour: 15.63 Street detour: 2.95	Parkway detour: 17.40 Street detour: 2.10	Forested Wetland: Parkway detour: 1.02 Street detour: 0.98	Parkway detour: 0.23 Street Detour: -	-	Parkway detour: 4.56 Street detour: 3.86
American River Erosion Contract 4A – Alt 3d	14.10	16.80	Forested Wetland: 0.47	0.23	-	3.86
American River Erosion Contract 4B – Tree Scour	1.58	0.26	-	-	-	0.14 Ditch: 0.19
Sacramento River Erosion Contract 3	4.68	0.23	-	20.70	-	-
MCP	2.60	10.67	0.41	-	0.35	6.35
ARMS	14.53	44.9	2.5	55.4	-	7.8
SRMS	-	-	-	-	-	-

**4.4.1.2.3 Alternatives**

Table 4.4.1-5 summarizes the effects of the action alternatives on vegetation and wildlife. Alternatives 3a, 3b, 3c, and 3d include slight modifications to American River Erosion Contract 4A, Alternative 4a and 4b include modifications to American River Mitigation, and Alternatives 5a, 5b, and 5c cover additional Sacramento River Mitigation options. If an Impact Number is not listed in the table below there is no change in impact for that alternative. For additional details, please refer to the comprehensive discussion in Appendix B, Section 4.1, “Vegetation and Wildlife.”

**Table 4.4.1-5. Effects of the Alternatives 3a, 3b, 3c, 3d, 4a, 4b, 5a, 5b, 5c on Vegetation and Wildlife**

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-a	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	All project sites, including mitigation sites	All alternatives would have similar construction and operations impacts on wildlife movement, with the greatest impact being from potential nighttime construction at the erosion sites.	VIS-2	Less than significant with mitigation incorporated.	Short-term moderate effects that are less than significant with mitigation incorporated.
4.1-b	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	All project sites, including mitigation sites	All alternatives would have similar construction and operations impacts on plant and wildlife populations. Implementation could temporarily reduce local nesting bird populations due to mortality during project activities.	BIRD-1	Less than significant with mitigation incorporated.	Short-term moderate effects that are Less than significant with mitigation incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 4A	Alternative 3a would implement a landside berm instead of a waterside berm, reducing riparian impacts.	VEG-1, VEG-2,	Short-term Significant and unavoidable, long-term less than significant with mitigation incorporated.	Significant and unavoidable short-term; long-term, moderate effects that are less than significant with mitigation incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 4A	Alternative 3b would use a different permanent bike trail reroute. The route would be slightly longer than the Proposed Action but would impact slightly less riparian habitat.	VEG-1, VEG-2,	Short-term Significant and unavoidable; long-term less than significant with mitigation incorporated.	Significant and unavoidable short-term; long-term, moderate effects that are less than significant with mitigation incorporated.

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 4A	Alternatives 3c and 3d would change the permanent bike trail route to go around the waterside berm or to a paved bike trail closer to the river along an existing off-road bike trail. Both of these alternatives would increase the amount of riparian vegetation required to be removed.	VEG-1, VEG-2,	Short-term Significant and unavoidable; long-term less than significant with mitigation incorporated.	Significant and unavoidable short-term; long-term moderate effects that are less than significant with mitigation incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	ARMS	Alternative 4a and 4b would retain 30-acre and 20-acre portions of the existing man-made pond, respectively, both reducing creation of riparian habitat compared to the Proposed Action.	VEG-1, VEG-2,	Less than significant short-term, no effect long-term.	N/A (CEQA only).
4.1-d	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.	American River Erosion Contract 4A	Alternative 3a would implement a landside berm instead of a waterside berm, avoiding impacts on aquatic habitats at this location.	N/A	No impact.	No impact.
4.1-d	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.	American River Erosion Contract 4A	Alternatives 3b and 3d would use different permanent bike trail reroutes. The routes would be slightly longer than the Proposed Action but impacts on aquatic habitats would be the same.	WATERS-1	Less than significant with mitigation incorporated.	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated.

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-d	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.	American River Erosion Contract 4A	Alternative 3c would reroute the bike trail around the waterside berm, resulting in substantially greater impacts on aquatic habitats than the Proposed Action.	WATERS-1	Less than significant with mitigation incorporated.	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated.
4.1-d	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.	ARMS	Alternative 4a and 4b would retain 30-acre and 20-acre portions of the existing man-made pond, respectively, both reducing the amount of aquatic habitat conversion compared to the Proposed Action.	WATERS-1	Less than significant with mitigation incorporated.	N/A (CEQA only).
4.1-d	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.	Sacramento River Mitigation	Alternative 5b would use Watermark Farms instead of the Grand Island Site for Sacramento River Mitigation. Because the site is primarily agricultural and ruderal lands, impacts on aquatic habitats would be less than at SRMS.	N/A	Less than significant with mitigation incorporated.	Short-term, moderate effects that are less than significant with mitigation incorporated.
4.1-e	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	American River Erosion Contract 4A, ARMS	Alternatives 3a, 3b, 3c, 3d, 4a, and 4b would require varying extents of tree removal, but implementation of flood protection activities by public agencies does not require a tree removal permit pursuant to local policies. These alternatives would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated	Negligible effects that are less than significant with mitigation incorporated

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-e	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Sacramento River Mitigation – Watermark Farms	Alternative 5b would remove few if any trees and implementation is not anticipated to conflict with any Yolo County policies protecting biological resources.	N/A	No impact	No impact
4.1-f	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	American River Erosion Contract 4A, ARMS	Alternatives 3a, 3b, 3c, 3d, 4a, and 4b Would not impact any conservation plans.	N/a	No impact	No impact
4.1-f	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	Sacramento River Mitigation – Watermark Farms	Alternative 5b would generally support goals of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan because native habitats would be restored for the purpose of species conservation.	N/A	Less than significant	Less than significant
4.1-a 4.1-b 4.1-c 4.1-d 4.1-e 4.1-f	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Sacramento River Mitigation – Watermark Farms	Alternative 5a would purchase all remaining, required mitigation credits from USFWS Approved Conservation Banks; Alternative 5c would purchase Delta smelt credits and provide funding to the Sunset Pumps project to meet Sacramento River Mitigation requirements. Both alternatives would undergo independent NEPA/CEQA compliance.	Determined by independent NEPA/CEQA analysis	No impact.	No impact.

## 4.4.2 Aquatic Resources and Fisheries

### 4.4.2.1 Existing Conditions

#### 4.4.2.1.1 Sacramento and American River

Native fish species present in the American River, Sacramento River, and Magpie Creek are listed in Table 16 of the 2016 ARCF GRR FEIS/EIR (p. 132-133). Shaded riverine aquatic (SRA) habitat and its importance to fisheries is discussed as well, in addition to other habitat characteristics within the rivers (p. 132-134):

“Important attributes of the aquatic habitat within the American and Sacramento Rivers are aquatic vegetation and SRA habitat. Aquatic vegetation is represented by floating, submerged, and emergent vegetation. Aquatic vegetation serves as hiding cover and an invertebrate food production base for nearly all aquatic species. The percent of aquatic vegetation cover varies throughout the study area...

Throughout the program area watersheds, altered flow regimes, flood control, and bank protection efforts have reduced sediment transport, channel migration, and instream woody material (IWM) recruitment, and have isolated the channel from its floodplain. Historically the floodplain provided areas for riparian vegetation recruitment and for rearing of native and special-status fish species. Levees and armored banks prevent fish from accessing productive floodplain habitats and limits nutrient exchange between the river and flooded riparian areas... The Lower American River is also a designated Wild and Scenic River under both the State and Federal Wild and Scenic Rivers Acts. The anadromous fisheries resources along the Lower American River are one of the designated extraordinary values of the river under this Act.”

SRA throughout the areas of the Proposed Action in the Sacramento and American Rivers was quantified and listed in the 2016 ARCF GRR FEIS/EIR (p. 134).

#### 4.4.2.1.2 Magpie Creek Project

Because the MCP area was included generally in the “East Side Tributaries” group of project sites in the original 2016 ARCF GRR FEIS/EIR, Magpie Creek’s specific suitability for special-status fish (specifically salmonids) was not described. The site is ill-suited for native fish due to managed flow regime (i.e., flood releases/pulses do not correspond with anadromous fish migration) and intense anthropogenic disturbance surrounding the MCP. In addition, the NMFS consulted on the Sacramento Area Flood Control Agency’s (SAFCA) “Magpie Creek Diversion Channel Enhancement Project” (June 15, 2005). NMFS concluded the project was not likely to adversely affect Sacramento River winter-run Chinook (*Oncorhynchus tshawytscha*), Central Valley spring-run Chinook, or California Central Valley steelhead (*O. mykiss*) in Magpie Creek as the three species and their corresponding critical habitat were not present in the project area due to obstructions (which includes the MCP for this SEIS/SEIR; ICF 2018). In addition, NMFS concluded that Essential Fish Habitat (EFH) was not present in Magpie Creek and did not recommend any conservation measures for Chinook salmon or steelhead (ICF 2018).

## 4.4.2.2 Environmental Effects

### 4.4.2.2.1 No Action Alternative

Section 3.7.4 of the 2016 ARCF GRR FEIS/EIR (USACE 2016, p. 137-141) presents the environmental effects of Alternative 2 (the No Action Alternative for this SEIS) on fisheries. In summary, these environmental effects related to fisheries at the Proposed Action sites (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, include those described in Table 4.4.2-1:

**Table 4.4.2-1. Summarized Environmental Effects of the No Action Alternative on Fisheries and Fisheries-related Resources.**

Site	Project Action	Environmental Effect on Fisheries	Level of Significance According to 2016 ARCF GRR FEIS/EIR
American River, Sacramento River	Rock placement	Disturb native resident pelagic fish via increase in noise, water turbulence, and turbidity. Native fish using nearshore habitat for cover would be displaced and vulnerable to predation	Less than significant with mitigation incorporated
American River, Sacramento River	Rock Placement	Natural bank element of SRA habitat would be lost with placement of rock along the levee slope	Temporary impact, less than significant
American River, Sacramento River	General construction	Disturbance of soils may increase sedimentation, increased suspended sediments (short-term), and increased turbidity (short-term) of nearshore aquatic habitat	Less than significant
American River, Sacramento River, Magpie Creek Project	General Ground Disturbing Activities	Could potentially cause erosion/soil disturbance, leading to an increase in sedimentation and turbidity	Less than significant, due to creation of planting berms to provide shade and instream woody material elements of SRA habitat
American River, Sacramento River, Magpie Creek	General Ground Disturbing Activities	Water quality impacts on fish physiology, behavior, habitat, and invertebrate prey resources	Less than significant with BMPs incorporated
Magpie Creek	Cutoff wall and flood wall construction	Potential loss of Shaded Riverine Aquatic (SRA) habitat	Less than significant with mitigation incorporated

Source: USACE 2016, adapted by GEI 2023

#### 4.4.2.2.2 Proposed Action

**Table 4.4.2-2. Summary of Aquatic Resources and Fisheries Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
4.2-a and -b	Result in 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 CDFW, USFWS, or NMFS; or Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors; impede the use of native wildlife nursery sites; substantially reduce the habitat of a fish population; or cause a fish population to drop below self-sustaining levels.	Less than Significant with Mitigation	Short-term to Medium-term and Moderate effects and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

**Table 4.4.2-3. Aquatic Resources and Fisheries Effects by Project Component**

Impact Number	Project Component	Significance before Mitigation	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
4.2-a and -b	MCP, Piezometer Network	No Impact	n/a	No Impact	No Impact
4.2-a and -b	American River Erosion Contract 3B North and South, American River 4B	Significant	FISH-1, FISH-2, FISH-3, and GEO-1	Less than Significant with Mitigation	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated.
4.2-a and -b	American River Erosion Contract 4A	Less than Significant	FISH-1, FISH-2, FISH-3, GEO-1, Conditions of new NMFS BO	Less than Significant with Mitigation	Short-term and Long-term, Moderate Effects that are Less than Significant with Mitigation
4.2-a and -b	Sacramento River Erosion Contract 3,	Less than Significant	FISH-1, FISH-2, FISH-3, WATERS-1, WQ-1, and GEO-1	Less than Significant with Mitigation	Short-term and Moderate and Long-Term and Minor Effects that are Less than Significant with Mitigation Incorporated
4.2-a and -b	ARMS	Significant	FISH-3, WATERS-1, WQ-1, and GEO-1	Less than Significant with Mitigation	Short-term and Moderate and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
4.2-a and -b	SRMS	Significant	FISH-3, WATERS-1, WQ-1, and GEO-1	Less than Significant with Mitigation	Short-term and Minor Effects that are Less than Significant with Mitigation Incorporated

A more detailed description of the impacts of the Proposed Action to aquatic resources and fisheries and details of Mitigation Measures FISH-1, FISH-2, FISH-3, GEO-1, and WQ-1 are available in Appendix B Section 4.2 “Aquatic Resources and Fisheries”.

**American River Erosion Contract 3B North and South, and 4B**

The placement of rock riprap below the OHWM at American River Erosion Contract 3B will occur during the standard in-water work period for anadromous fishes (as defined in FISH-3), when these fish are least likely to be present and less likely to be affected by construction. Project actions may adversely affect winter-run Chinook salmon, Central Valley (CV) steelhead, and CV spring- and fall-run Chinook salmon due to: (1) incidental take during construction; (2) fragmentation of existing natural bank habitats due to the placement of revetment and IWM; and (3) the potential loss of long-term fluvial functioning necessary for the development and renewal of SRA habitat along the bank.

Impacts to salmonid habitat are presented in in Table 4.4.2-4. This impact would be significant but would be reduced with implementation of mitigation measures. Implementing Mitigation Measures FISH-1, FISH-2, FISH-3, and FISH-4 would reduce the significant construction, SRA, and salmonid habitat impacts associated with the implementation of the Proposed Action to a less than significant level. A habitat model would be used to determine the extent of effects, work windows and construction BMPs would be imposed to reduce disturbance during construction, and compensatory mitigation would be implemented to replace lost habitat value. Current programmatic level designs for ARMS and SRMS cannot provide quantitative data for fisheries impacts including those to salmonids and green sturgeon, shaded riverine aquatic and Delta smelt habitats. Fisheries impacts will be disclosed in the Final SEIS/SEIR.

American River Erosion Contract 4B would be construction completely above the OHWM. There will be no direct impact on candidate, sensitive, or special-status fish species or their habitats at these sites.

The No Action Alternative includes a different method of erosion protection, but with implementation at similar locations to the Proposed Action. The impacts of the design refinements would be similar to those identified in the No Action Alternative.

**Table 4.4.2-4. Fisheries Habitat Impacts.**

Project Component	Type of Habitat	Proposed Action Impact (acres)	Design Refinements Impact (acres)
American River Erosion Contract 3B	Salmonids & Green Sturgeon	24.0 acres	7.86 acres
American River Erosion Contract 3B	Shaded Riverine Aquatic	24.0 acres	7.86 acres
Sacramento River Erosion	Delta Smelt	12.4 acres	0.40 acres
Sacramento River Erosion	Salmonids & Green Sturgeon	28.7 acres	1.0 acres
Sacramento River Erosion	Shaded Riverine Aquatic	28.7 acres	1.0 acres

## American River Erosion Contract 4A

Improvements at American River Erosion Contract 4A would be implemented above the OHWM in the American River floodplain. All impacts to fish and associated habitat occur upstream of the SR-160 bridge and outside of the critical habitat designation for CV spring-run Chinook and Green Sturgeon. Parts of the bike trail reroute may need to be raised which would alter the topography of the area. There is active coordination with NMFS on this issue and a more detailed analysis on the extent of impacts to potential fish stranding is going to be included in the new Biological Opinion. If it is determined in the new Biological Opinion that there will be significant fish stranding, the Biological Opinion will outline measures that would be incorporated to reduce impacts to a less than significant level. At present, there is no substantial evidence that there will be any fish stranding of special-status fish species from American River Erosion Contract 4A.

## Sacramento River Erosion Contract 3; American River Mitigation Site, and Sacramento River Mitigation Site

Effects would be similar to those described previously for American River Contract 3B, and the significant effect would be reduced to a less-than-significant level by implementing the same mitigation measures. In addition to the species affected by American River Contract 3B, these project components would also affect winter-run Chinook salmon, CV steelhead, CV spring- and fall-run Chinook salmon, and the Sacramento River Erosion and SRMS also affect southern distinct population segment (SDPS) of North American green sturgeon, and delta smelt.

### 4.4.2.2.3 Alternatives

Table 4.4.2-5 summarizes the effects of the action alternatives on aquatic resources and fisheries. Alternative 3b would not change effects analyses for aquatic resources and fisheries compared to the Proposed Action. Alternatives 3a, 3c, 4a, 4b, and 5b effects are summarized below. Alternatives 5a and 5c include purchase of mitigation credits or funding support for other projects for the SRMS project component and so would have no impact on fisheries for that project component. For additional details, please refer to the comprehensive discussion in Appendix B, Section 4.2, “Aquatic Resources and Fisheries.”

**Table 4.4.2-5. Effects of the Alternatives on Aquatic Resources and Fisheries**

Impact Number	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	American River Erosion Contract 4A	Since work for Alternative 3a is on the landside of the levee, there would be no risk to fish habitat or of fish stranding.	N/A	No Impact	No Impact
4.2-a and 4.2-b	American River Erosion Contract 4A	Alternative 3b. Impacts would be the same as the Proposed Action.	NMFS BO	Less than Significant with Mitigation	Short-term and Long-term Moderate Effects that are Less than Significant with Mitigation

Impact Number	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3c may require a temporary detour that would impact 0.2 acres below the OHWM. The temporary detour would not require raising the bike trail, so there would not be a risk for fish stranding.	FISH-1, FISH-2, FISH-3, GEO-1,	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation
4.2-a and 4.2-b	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3d would impact 0.2 acres below the OHWM in order to build the bike trail reroute. The bike trail could need to be raised, which would increase the risk of fish stranding in the area.	FISH-1, FISH-2, FISH-3, GEO-1, Measures in the New NMFS Biological Opinion	Less than Significant with Mitigation	Short-term and Long-term Moderate Effects that are Less than Significant with Mitigation
4.2-a and -b	ARMS	Alternatives 4a and 4b would preserve a portion of the existing man-made pond. This change would not reduce the existing risk of stranding fish as water receded across the floodplain following high-water events. There would be no change in effects for other project components	FISH-1, FISH-2, FISH-3, VEG-1, VEG-2 WATERS-1, WQ-1	Less than Significant after Mitigation	Less than Significant after Mitigation
4.2-a and -b	SRMS	Alternative 5b would result in long-term increase in aquatic habitat and benefit to special-status and other native fish species through the creation of shallow water and SRA habitat similar to the Proposed Action.	VEG-1, VEG-2, FISH-1 FISH-2 FISH-3 GEO-1 WATERS-1 WQ-1	Short-term less than significant with mitigation incorporated; long-term beneficial	Short-term and moderate effects that are less than significant with mitigation incorporated; long-term and minor effects that are less than significant.
4.2-a and 4.2-b	SRMS	Alternative 5a would result in no impact within the Project site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks	N/A	No impact	No impact
4.2-a and 4.2-b	SRMS	Alternative 5c would result in no impact within the Project site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks and Sunset Pumps project.	N/A	No impact	No impact

### 4.4.3 Special Status Species

Below is a summary of the Special Status Species analysis. Please refer to Appendix B, Section 4.1 for the detailed analysis. Only species determined to have potential to occur at a given site are discussed in the relevant effects analysis section.

#### 4.4.3.1 Existing Conditions

Special-status species evaluated for potential to occur in the study area for the proposed project refinements were identified based on review of current USFWS species lists (USFWS 2023),

resource databases and other information available from NMFS (NMFS 2021), California Natural Diversity Database (CNDDDB) occurrences (CDFW 2023), and the California Native Plant Society (CNPS) online inventory (CNPS 2023).

USACE has reinitiated consultation on the ARCF 2016 Project under ESA Section 7. In 2021, USFWS and NMFS issued an amended BO for the ARCF 2016 Project (USFWS 2021, NMFS 2021). The ARCF 2016 Project was coordinated with USFWS under the Fish and Wildlife Coordination Act. A new Programmatic Biological Assessment (BA) has been drafted to address future mitigation projects that will occur within the allowable ARCF mitigation areas. USACE has reinitiated consultation with USFWS under the ESA for the MCP, ARMS, and SRMS. Appendix L contains the updated 2025 BOs from NMFS and USFWS. Impacts to special status bird species would be covered under a permit from the Migratory Bird Permit Office. See Table 4.3-1 in Appendix B 4.3 for a full list of special status species along with their potential to occur in the project site.

The ARMS and SRMS are actively undergoing additional comprehensive surveys for sensitive biological resources. The results will be used to assess impacts to special status species in more detail and to inform site design before being utilized for ARCF mitigation.

### Special-status Fish, Wildlife, and Plants

Special-status terrestrial species with potential to occur within the study area are listed in Table 4.4.3-1. Listed fish species with potential to occur within the study area are described in detail in Section 4.4.2, “Aquatic Resources and Fisheries.”

**Table 4.4.3-1. Special-status Wildlife, Fish, and Plant Species with Potential to Occur Within the Study Area**

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)
Mammal	American badger	<i>Taxidea taxus</i>	--/SSC/--
Mammal	Pallid bat	<i>Antrozous pallidus</i>	--/SSC/--
Mammal	Western red bat	<i>Lasiurus blossevillii</i>	--/SSC/--
Amphibian	California tiger salamander	<i>Ambystoma californiense</i>	T/T/--
Invertebrate	Crotch's bumble bee	<i>Bombus crotchii</i>	--/SSC/--
Invertebrate	Monarch butterfly	<i>Danaus plexippus plexippus</i> pop. 1	--/FC/--
Invertebrate	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T/--/--
Invertebrate	Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T/--/--
Invertebrate	Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	E/--/--
Reptile	Giant garter snake	<i>Thamnophis gigas</i>	T/T/--
Reptile	Northwestern pond turtle	<i>Actinemys marmorata</i>	PT/SSC/--
Bird	American peregrine falcon	<i>Falco peregrinus anatum</i>	--/FP/--
Bird	American white pelican	<i>Pelecanus erythrorhynchos</i>	--/SSC/--
Bird	Bald eagle	<i>Haliaeetus leucocephalus</i>	--/E, FP/--
Bird	Bank swallow	<i>Riparia riparia</i>	--/T/--
Bird	California black rail	<i>Laterallus jamaicensis coturniculus</i>	--/T, FP/--

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)
Bird	California Ridgway's rail	<i>Rallus obsoletus obsoletus</i>	E/E, FP/--
Bird	Golden eagle	<i>Aquila chrysaetos</i>	--/FP/--
Bird	Grasshopper sparrow	<i>Ammodramus savannarum</i>	--/SSC/--
Bird	Least Bell's vireo	<i>Vireo bellii pusillus</i>	E/E/--
Bird	Northern harrier	<i>Circus cyaneus</i>	--/SSC/--
Bird	Purple martin	<i>Progne subis</i>	--/SSC/--
Bird	Song sparrow (Modesto population)	<i>Melospiza melodia</i> pop. 1	--/SSC/--
Bird	Swainson's hawk	<i>Buteo swainsoni</i>	--/T/--
Bird	Tricolored blackbird	<i>Agelaius tricolor</i>	--/T/--
Bird	Western burrowing owl	<i>Athene cunicularia</i> ssp. <i>hypugaea</i>	--/SSC/--
Bird	Western yellow-billed cuckoo	<i>Coccyzus americanus</i> ssp. <i>occidentalis</i>	T/E/--
Bird	White-tailed kite	<i>Elanus leucurus</i>	--/FP/--
Bird	Yellow-breasted chat	<i>Icteria virens</i>	--/SSC/--
Bird	Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	--/SSC/--
Bird	Yellow warbler	<i>Setophaga petechia</i>	--/SSC/--
Plant	Big Scale Balsamroot	<i>Balsamorhiza macrolepis</i>	--/CRPR 1B.2
Plant	Bristly sedge	<i>Carex comosa</i>	--/CRPR 2B.2
Plant	Boggs Lake hedge hyssop	<i>Gratiola heterosepala</i>	--/E/CRPR 1B.2
Plant	Bolander's waterhemlock	<i>Cicuta maculata</i> var. <i>bolanderi</i>	--/CRPR 2B.1
Plant	Delta mudwort	<i>Limosella australis</i>	--/CRPR 2B.1
Plant	Delta tule pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	--/CRPR 1B.2
Plant	Dwarf downingia	<i>Downingia pusilla</i>	--/CRPR 2.2
Plant	Ferris' milk-vetch	<i>Astragalus tener</i> var. <i>ferrisiae</i>	--/CRPR 1B.1
Plant	Legenere	<i>Legenere limosa</i>	--/CRPR 1B.1
Plant	Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	--/R/CRPR 1B.1
Plant	Pappose tarplant	<i>Centromadia parryi</i> ssp. <i>parryi</i>	--/CRPR 1B.2
Plant	Saline clover	<i>Trifolium hydrophilum</i>	--/CRPR 1B.2
Plant	Sanford's arrowhead	<i>Sagittaria sanfordii</i>	--/CRPR 1B.2
Plant	San Joaquin spearscale	<i>Extriplex joaquinana</i>	--/CRPR 1B.2
Plant	Side-flowering skullcap	<i>Scutellaria lateriflora</i>	--/CRPR 2B.2
Plant	Stinkbells	<i>Fritillaria agrestis</i>	--/CRPR 4.2
Plant	Suisun Marsh aster	<i>Symphyotrichum lentum</i>	--/CRPR 1B.2
Plant	Valley brodiaea	<i>Brodiaea rosea</i>	--/CRPR 4.2
Plant	Watershield	<i>Brasenia schreberi</i>	--/CRPR 2B.3
Plant	Woolly rose-mallow	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	--/CRPR 1B.2

**NOTES:**

**Status Codes:** Federal/State/Other

**Federal**

E = listed as endangered under the Federal Endangered Species Act.

T = listed as threatened under the Federal Endangered Species Act.

PT = Proposed to be listed as threatened under the California Endangered Species Act.

C = candidate species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

SC = listed as species of concern

-- = no listing.

#### **State**

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

C = Candidate for listing under the California Endangered Species Act receiving the same legal protection afforded to an endangered or threatened species.

FP = fully protected under the California Fish and Game Code.

R = state listed as rare

SSC = species of special concern in California.

-- = no listing.

#### **Other**

Special-status plants with potential to occur at one or more of the project sites. Plants are ranked according to the California Native Plant Society's California Rare Plant Rank (CRPR):

Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere; Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2A = Plants presumed extirpated in California, but more common elsewhere; Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

.1—Seriously endangered in California

.2—Fairly endangered in California

.3—Not very endangered in California

### 4.4.3.2 Environmental Effects

#### 4.4.3.2.1 No Action Alternative

The No Action Alternative is the buildout of the authorized project, the Recommended Plan from the ARCF GRR FEIS/EIR. The conclusion under the ARCF GRR FEIS/EIR was that construction of the project activities would result in less than significant effects to all species with the implementation of avoidance, minimization, and compensation measures. Detailed impacts to special status species from the No Action Alternative are described in the ARCF GRR FEIS/EIR in Section 3.8 “Special Status Species” beginning on page 144, along with the Record of Decision, and are summarized below.

The project will result in unavoidable permanent impacts to 0.25 acres of vernal pools; 3,292 stems (70 acres) of elderberry shrub habitat utilized by Valley Elderberry Longhorn Beetle; 14 acres to shallow water habitat typically utilized by Delta Smelt; 34 acres of aquatic spawning habitat for Delta Smelt; 20 acres of instream habitat typically utilized by the Green Sturgeon; 150 acres to riparian habitat typically utilized by the Western Yellow-billed Cuckoo, Swainson’s hawk, white-tailed kite, and purple martin; 2.5 acres to grassland utilized by burrowing owl; 15 acres to aquatic habitat typically utilized by the Giant Garter Snake; and 30 acres of upland habitat typically utilized by the Giant Garter Snake. The project will result in unavoidable temporary impacts to 82,325 linear feet of shaded riverine aquatic habitat and 75 acres of upland habitat typically utilized by the Giant Garter Snake during aestivation (or dormancy). It is important to note that the ARCF GRR FEIS/EIR did not describe impacts to all the species listed above in Table 4.4.3-1. The effects to these species under the No Action Alternative would be consistent with those described under the Proposed Action. Mitigation measures listed in section 3.8.6 of the ARCF GRR FEIS/EIR would be implemented to minimize the impacts as much as feasible, though there would still be significant unavoidable impacts to recreational resources. To mitigate for unavoidable impacts, USACE will purchase credits at an approved mitigation bank equivalent to restoring habitat to 0.5 acres of vernal pools, 42 acres of shallow water habitat, 32 acres of aquatic spawning habitat, 45 acres of aquatic habitat for Giant Garter Snake, and 90 acres of upland habitat for the Giant Garter Snake. At locations on- and off-site of the study area, USACE will restore 301.2 acres of riparian habitat, 70.89 acres of elderberry shrubs, 75 acres of upland habitat for the Giant Garter Snake, 20 acres of instream habitat for Green Sturgeon including fish passage, and replant 82,325 linear feet of shaded riverine aquatic habitat.

#### 4.4.3.2.2 Proposed Action

**Table 4.4.3-2. Summary of Special Status Species Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	Less than Significant with Mitigation Incorporated.	Short-term Significant, unavoidable; Long-term, minor effects that are Less than Significant with Mitigation Incorporated

**Table 4.4.3-3. Special Status Species Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
4.3-a	American River Erosion Contract 3B North and South, American River Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1,	Less than Significant with Mitigation Incorporated.	Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
4.3-a	MCP	VEG-1, VEG-2, VIS-2, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1, SHRIMP-1	Less than Significant with Mitigation Incorporated.	Short-term and Moderate; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
4.3-a	SRMS	VEG-1, VEG-2, VIS-2 FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1	Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated

**Table 4.4.3-4. Species Impacts for ARCF GRR SEIS – CEQA Impacts**

Location	Cuckoo / Riparian (above OHW and Minus VELB *	Cuckoo / Riparian (below OHWM) *	VELB With Buffer*	VELB Canopy*	GG S*	Vernal Pools (acres)
<i>GRR Assumption</i>	150.00	3,292 stems	3,292 stems	15 Aquatic & 105 Uplands	0.25	0.25
American River Erosion Contract 3B North and South	2.0	6.25	10.50	2.0	-	-
American River Erosion Contract 4A – Proposed Action	1.80	-	2.49	0.07	-	-
American River Erosion Contract 4A - Alt 3a	0.06	-	0.15	-	-	-
American River Erosion Contract 4A - Alt 3b	2.78	-	3.11	0.09	-	-
American River Erosion Contract 4A - Alt 3c	Street Detour: 1.90 Parkway Detour: 1.79	Street Detour: - Parkway Detour: 0.22	Street Detour: 1.16 Parkway Detour: 13.52	Street Detour: 0.07 Parkway Detour: 1.27	-	-
American River Erosion Contract 4A - Alt 3d	0.98	0.22	12.91	1.25	-	-
American River Erosion Contract 4B	0.45	-	1.13	0.04	-	-
Sacramento River Erosion Contract 3	1.0	0.2	12.92	1.24	-	-
Magpie Creek Project	-	-	-	-	-	0.40

\* Habitat Impacted (acres)

\*\* Current programmatic level designs for ARMS and SRMS cannot provide quantitative data for species impacts. Detailed impacts to habitat will be disclosed in the Final SEIS/SEIR.

A more detailed description of the impacts of the Proposed Action to special status species and details of Mitigation Measures VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1, and SHRIMP-1 are available in Appendix B Section 4.3 “Special Status Species”.

### ***American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, American River Mitigation Site***

#### *American Badger*

American badger (*Taxidea taxus*) inhabits grasslands and riparian habitats. Potential impacts on American badger include mortality, injury, displacement, and harassment, along with permanent and temporary loss of habitat. During construction under the Proposed Action, badgers would be at risk of direct impacts such as vehicle strikes, along with impacts from loss of habitat, increased risks of predation loss, and disruption of behavioral patterns. This would be a significant impact. Implementation of Mitigation Measure BADGER-1 would reduce this impact to a less-than-significant level.

#### *Pallid Bat and Western Red Bat*

Construction activities could disturb riparian forest, which provides potential roosting habitat for pallid bat (*Antrozous pallidus*) and western red bats (*Lasiurus blossevillii*). The period of construction activities would overlap the bat maternity season (generally May 1 to August 31). Tree removal in riparian habitat could adversely affect breeding and non-breeding pallid bats by causing the loss of established roosts and potential roosting habitat. Project construction work around vehicle bridge crossing the American River could also disturb pallid bat if they were occupying any of the bridges. General construction-related disturbance, including exposure to noise, vibration, and dust, could adversely affect breeding and non-breeding bats. This would be a significant impact. With implementation of Mitigation Measure BATS-1, the impact of construction on this species would be reduced to a less-than-significant level.

#### *Crotch's Bumble Bee*

Direct impacts of project construction could include mortality of individuals or nests from activities such as vegetation removal and materials staging, or from construction equipment traffic. Vegetation removal could also result in a reduction of foraging habitat. With implementation of Mitigation Measure BEE-1 identified below for Crotch's bumble bee, and Mitigation Measures VEG-1 and VEG-2 the impact of construction on this species would be reduced to a less-than-significant level.

#### *Monarch Butterfly*

The monarch butterfly (*Danaus plexippus plexippus*) is a candidate species under the Federal ESA. The California overwintering population can be found in Northern California year-round, wintering on coast and breeding inland, including in the Central Valley (Xerces Society 2018). There are no CNDDDB occurrences for this species in Sacramento County, though there are other observations of adults, pupae, and larvae in the area (iNaturalist 2023b, Western Monarch Milkweed Mapper 2023). Adults may feed on suitable nectar plants and isolated milkweed

(*Asclepias* spp.) have been observed. Construction of the project would result in loss of habitat due to loss of nectar vegetation and potential host plants for the Monarch butterfly. Additionally, O&M activities associated with mowing and application of herbicides could directly affect Monarch butterflies. These would be potentially significant impacts. The proposed mitigation areas would result in the creation of habitat that would not be subject to herbicide drift. With the implementation of Mitigation Measure MONARCH-1, VEG-1, and VEG-2, the effect is expected to be reduced to a less-than-significant level and inclusion of pollinator species within mitigation areas would benefit the species in the long run.

#### *Valley Elderberry Longhorn Beetle (VELB)*

Construction would directly affect valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) habitat (Please see Table 4.4.3-4). These areas include the shrub and the associated riparian habitat. The impact of this loss of Federally listed species habitat would be significant. The impact would be reduced to a less-than-significant level with implementation of Mitigation Measure VELB-1, which would include off-site VELB habitat.

There are no elderberry shrubs present within the Sacramento River Erosion Contract 3 and piezometer network project areas. All elderberry shrubs would be avoided during project implementation. Therefore, no mitigation is required.

#### *Northwestern Pond Turtle*

Northwestern pond turtle (*Actinemys marmorata*) inhabits rivers, pond, wetlands, and irrigation ditches for aquatic habitat and sandy or grassland areas for upland habitat. Construction equipment accessing areas occupied by northwestern pond turtle could strike turtles that are nesting, basking, or traversing upland habitat, resulting in mortality of these animals. In addition, turtles in aquatic habitat could be displaced by construction activities, stranded by dewatering, or harmed by construction-related chemicals introduced to aquatic habitat. Habitat for the turtle would expand at ARMS. With implementation of Mitigation Measures TURTLE-1, GEO-1, and WQ-1, the impact of construction on northwestern pond turtle would be reduced to a less-than-significant level.

#### *Bald Eagle*

Bald eagles may breed near rivers and open water and at least one nest has been observed within the ARMS project area. Per the consultation with USACE and USFWS, work within 660 feet of the bald eagle nest would be permitted during the nesting season (late December-early July), with receipt of a disturbance permit from USFWS prior to construction. However, avoidance and minimization of permanent impacts and recreational access features within 330 feet of the nest, were by USFWS. USFWS provided the suggested distances based on regulatory guidance and consultation with the Project Partners. Construction activities at ARMS are anticipated to take place over multiple construction seasons (anticipated 3 seasons), which will occur during the bald eagle nesting season and result in impacts on foraging habitat and nest success that could be potentially significant. Vegetation management during O&M activities is not anticipated to affect large trees that represent suitable nesting habitat for bald eagle. Because these activities would be short-term and the resulting impacts would be temporary, impacts of O&M would be less than significant. With implementation of the mitigation measures identified for impacts on riparian habitat (VEG-1 and VEG-2) and nesting birds (BIRD-1), there would be no net loss of eagle

nesting habitat and the impact on bald eagle from construction-related activities would be reduced to a less-than-significant level.

#### *Bank Swallow*

Bank swallows (*Riparia riparia*) historically nested along the Lower American River, recorded as recently as 1986 (CDFW 2023), and continue to forage in the area, but are not known to nest in the Project Area due to the dense vegetation and riprap cover on the banks. As a result, impacts to bank swallow are considered less than significant. Implementation of Mitigation Measure BIRD-1, including pre-construction surveys, training of construction crews, and avoidance buffers if nesting birds are located, the impact on bank swallow from construction activities would serve to provide assurances that nesting colonies, if they re-establish, would be avoided during construction.

#### *Burrowing Owl*

During their nesting period (February 1 through August 31) and throughout the year, burrowing owls (*Athene cunicularia*) could use small-mammal burrows in grassland areas that are present in and adjacent to portions of the Project Area. If present, ground disturbance (excavation and backfilling) could result in direct mortality or injury of burrowing owls within burrows and similar nesting features. Such features could be disturbed or destroyed during construction in staging areas. These would be significant impacts. Implementation of focused surveys to identify suitable habitat and active burrows, placement of avoidance buffers to avoid active burrows, and compensatory mitigation (if needed to compensate for habitat loss at sites that support active burrows) as described in Mitigation Measure BUOW-1, would reduce potential impacts on burrowing owl to a less-than-significant level. Mitigation Measure BUOW-1 was previously adopted for the ARCF 2016 Project.

#### *Purple Martin*

Purple martins (*Progne subis*) inhabit riparian forest and woodland areas and nest in tree cavities or crevices of cliffs. This species is also known to use infrastructure such as bridge and overpasses (e.g., weep holes) or other manmade structures (e.g., lamp posts, traffic lights, birdhouses) for nesting. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could continue to fragment suitable habitat for this species and result in direct take of purple martins if any are nesting in the trees targeted for removal. This impact would be significant. With implementation of Mitigation Measure BIRD-1 and restoration of riparian habitat in the Parkway, the impact of construction on purple martin would be reduced to a less-than-significant level.

#### *Swainson's Hawk*

As described in Section 3.8.4 (page 168) of the ARCF GRR FEIS/EIR, the Project Area possesses suitable roosting and nesting habitat for Swainson's hawk (*Buteo swainsoni*), but no known active or recently active nest trees would be removed. Before the start of construction, pre-construction surveys would be conducted following the Swainson's Hawk Technical Advisory Committee Guidance. Should surveys indicate that nesting Swainson's hawk are

present, the potential would exist for short-term, temporary impacts during construction from dust, noise, and vibration.

Although the removal of riparian trees would be mitigated through compensatory plantings, there would be a temporal loss of habitat until the newly planted trees could become established and mature. However, suitable nest trees would remain on or near the project sites and this temporal loss is unlikely to have substantial adverse effects. Long-term significant effects on Swainson's hawk nesting habitat could result from the loss of riparian habitat in the Project Area. However, there would be a net increase in quality riparian habitat present once the mitigation plantings become established. With implementation of the mitigation measures identified for impacts on riparian habitat (VEG-1 and VEG-2) and nesting birds (BIRD-1), the impact on Swainson's hawk from construction-related activities, including nesting habitat removal, would be reduced to a less-than-significant level.

#### *Western Yellow-Billed Cuckoo and Least Bell's Vireo*

As described in the Proposed Action effects discussion in Section 3.8.4 (page 167) of the ARCF GRR FEIS/EIR, the Project Area is unlikely to support nesting western yellow-billed cuckoos (*Coccyzus americanus occidentalis*) because the riparian corridor is narrow, patchy, and frequented by park visitors. For similar reasons the Project Area is unlikely to support least Bell's vireo (*Vireo bellii pusillus*). Construction of American River Erosion Contract 3B North and South would result in the loss of riparian habitat (Table 4.1-1 in Appendix B, Section 4.1 "Vegetation and Wildlife"). This loss of habitat would be a less than significant impact. With implementation of Mitigation Measures VEG-1, VEG-2, and BIRD-1, the impact would be reduced to a less-than-significant level.

#### *White-Tailed Kite*

The Project Area contains numerous large riparian trees that provide suitable nesting conditions for white-tailed kite (*Elanus leucurus*). Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could also result in direct take of active white-tailed kite nests and would reduce the number of available potential nest trees until replacement plantings mature enough to provide suitable nest sites. Loss of an active nest would be a significant impact, but the temporal reduction in suitable nest trees is unlikely to have a substantial adverse effect because many suitable nest trees would remain available on and near the project sites. Implementation of Mitigation Measures VEG-1 and VEG-2 would reduce the impact on riparian nesting habitat to a less-than-significant level. Implementation of Mitigation Measure BIRD-1 would reduce the impact on nesting white-tailed kites to a less-than-significant level.

#### *Northern Harrier*

The northern harrier primarily inhabits open habitats like marshes, grasslands, and wetlands. Suitable foraging and potential nesting habitat exist in the grasslands at Lower American River Erosion Contract 4B and ARMS, though the species likely occurs in low numbers due to the nearby urban environment. While project activities would reduce some marginal-quality habitat, this is not expected to significantly affect the species. However, active nests present during construction could be destroyed or disturbed, leading to nest failure, which would be a

significant impact. Implementing Mitigation Measure BIRD-1 would reduce this impact to a less-than-significant level by requiring pre-construction nesting bird surveys.

### *Special Status Plants*

Four special-status plants have been documented or determined to have potential to occur at one or more of the American River erosion sites, Sacramento River Erosion Contract 3B, and ARMS: bristly sedge, pappose tarplant, Sanford's arrowhead and woolly rose-mallow. None of these species have been documented in or immediately adjacent to the construction footprint. However, if found to occur, plants could be destroyed by construction activities, resulting in damage to or mortality of the plants. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level, because as part of the final construction design, Project Partners would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of known special status plants.

### *Special Status Fish*

Listed fish species with potential to occur within the study area are described in Section 4.4.2, "Aquatic Resources and Fisheries."

### *Magpie Creek Project*

*Vernal Pool Fairy Shrimp & Tadpole Shrimp* (See Table 4.1-1 in Appendix B, Section 4.1 "Vegetation and Wildlife")

In the study area, vernal pools occur near Magpie Creek. There are recorded occurrences of vernal pool fairy shrimp in the CNDDDB from 1995 (CDFW 2023) and 2018 (ICF 2018). Construction of the new channel and maintenance road would require filling a portion of a wetland (See Table 4.1-1 in Appendix B, Section 4.1 "Vegetation and Wildlife"). Construction of the new channel and maintenance road would impact less than 0.1 acre of seasonal wetland. This could directly impact vernal pool fairy and tadpole shrimps. Implementing Mitigation Measure SHRIMP-1, GEO-1, WQ-1, and WATERS-1 would reduce this impact to less than significant.

*Swainson's Hawk, White-Tailed Kite, Purple Martin, Other Breeding and Migratory Birds, Crotch Bumble Bee, Monarch Butterfly*

The MCP work area is primarily composed of grasses and forbs, with emergent wetland vegetation and limited small riparian trees along the stream banks. In general, there is less suitable nesting habitat for many bird species than at the American River sites. However, the analysis from "American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, ARMS, Sacramento River Erosion Contract 3" is still applicable to the MCP.

### *Northwestern Pond Turtle*

Construction of the MCP could result in mortality of northwestern pond turtle. With implementation of Mitigation Measure TURTLE-1, significant impacts on this species would be reduced to a less-than-significant level.

### *Burrowing Owl*

There have been no burrowing owls documented at the MCP site; however, there is a high likelihood MCP supports burrowing owls. Ground disturbing activities could result in burrow abandonment and if an occupied burrow is present within the construction footprint and cannot be avoided, it could destroy an occupied burrow resulting in a significant impact. With implementation of Mitigation Measure BUOW-1, significant impacts on this species would be reduced to a less-than-significant level.

### *Special Status Plants*

A protocol level survey completed in June 2023 observed no special-status plant species (GEI 2023a). In addition, an April 2018 survey for the Magpie Creek Floodplain Conservation Project did not observe any special-status plant species (ICF 2018). Some proposed staging areas include seasonal wetlands that are potential habitat for several special-status plant species. Mitigation measure PLANT-1 would be implemented before construction begins to confirm special-status plants would not be affected and further minimize impacts in the unlikely event they are found.

### *Sacramento River Mitigation*

The analysis for “American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, ARMS, Sacramento River Erosion Contract 3” is applicable to Sacramento River Mitigation. However, the following additional species are also analyzed due to SRMS location in the Sacramento-San Joaquin Delta.

### *Valley Elderberry Longhorn Beetle*

There are over 40 elderberry shrubs in the proposed SRMS, and construction would directly affect VELB (*Desmocerus californicus dimorphus*) habitat (Table 4.1-1 in Appendix B, Section 4.1 “Vegetation and Wildlife”). These areas include the shrub and the riparian habitat within 50 meters (-165 feet) of an elderberry shrub, which is considered VELB habitat. The impact of this loss of Federally listed species habitat would be significant. The impact would be reduced to a less-than-significant level with implementation of Mitigation Measure VELB-1, which would include off-site VELB habitat.

### *California black rail (CEQA only)*

Potential California black rail habitat at SRMS is limited to a small bullrush marsh area, unsuitable for nesting and unlikely to support a resident population. Construction activities pose a very low risk of disturbing or displacing a small number of dispersing individuals, with no significant risk of injury or mortality. If individuals are present, they could relocate to suitable habitat nearby. Overall, the project is expected to have a long-term beneficial impact by significantly increasing the amount and quality of habitat for the species.

### *Tricolored blackbird*

Project implementation would result in a short-term adverse effect on habitat for tricolored blackbird but there would likely be a long-term increase in amount and quality of habitat for this species. Though there are no CNDDDB occurrences within 5 miles of SRMS, if tricolored blackbirds do occur onsite, active nests could be destroyed or disturbed during restoration and

maintenance activities, potentially resulting in nest failure. This could be a significant impact. Implementing Mitigation Measure BIRD-1 would reduce this impact to a less-than-significant level.

#### *Giant Garter Snake*

There are giant garter snake observation records north and south of the SRMS. The bulrush marsh along the western and southern shoreline provides some suitable aquatic habitat for the giant garter snake and refugia including downed logs. However, the giant garter snake prefers slower moving water and "is not found in or around larger rivers due to the presence of predators" (USFWS 2023b). In addition, the SRMS is at the western edge of the snake's range where brackish waters from the Suisun Bay mixes with fresh water in the Delta. Based on these factors the giant garter snake is unlikely to occur at SRMS. Construction activities could also result in displacement, injury, or mortality of GGS. Implementing Mitigation Measure GGS-1 (from the 2021 Sacramento Weir Widening Project EIS/EIR) and Mitigation Measure GEO-1 would avoid encounters with GGS and reduce significant direct effects on giant garter snake to a less-than-significant level by minimizing any temporary impacts. The long-term impact would be beneficial because protection of the site and re-establishing emergent vegetation and refugia would have long-term ecological benefits to many species, including the giant garter snake.

#### *Song sparrow ("Modesto" population)*

The "Modesto" population of song sparrow (*Melospiza melodia*) resides in the northcentral portion of the Central Valley, with the highest densities in the Butte Sink area of the Sacramento Valley and in the Sacramento–San Joaquin River Delta. SRMS contains suitable nesting habitat, thus potential for occurrence is high. Project implementation would result in a short-term adverse effect on habitat but there would likely be a long-term increase in amount and quality of habitat for this species. Implementing Mitigation Measure BIRD-1 would reduce this potential impact to a less-than-significant level.

#### *Special Status Plant Species*

Suisun marsh aster (*Symphotrichum lentum*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), and Mason's lilaopsis (*Lilaeopsis masonii*) have known occurrences within the project site, and Mason's lilaopsis and woolly rose-mallow have been documented in the near vicinity. Bristly sedge, Bolander's water-hemlock, Delta mudwort (*Limosella australis*), saline clover, Sanford's arrowhead, side-flowering skullcap, and water shield also have the potential to occur on site. ). If special status plants are present, they could be removed or crushed by construction equipment or trampled by construction personnel, resulting in damage to or mortality of the plants. The final design would avoid special status plant species to the greatest extent possible. However, ground disturbance for mitigation site construction may necessitate removal of these plants to support the highest quality habitat design. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level, because as part of the final construction design, Project Partners would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of known special status plants. If special-status plant species cannot be avoided during construction, USACE and CVFPB would coordinate with the resource agencies to determine additional appropriate mitigation measures.

### *Special Status Fish*

Listed fish species with potential to occur within the study area are described in Section 4.2, “Aquatic Resources and Fisheries.”

#### **4.4.3.2.1 Alternatives**

Table 4.4.3-5 summarizes the effects of the action alternatives on vegetation and wildlife. Alternative 3 includes slight modifications to American River Erosion Contract 4A, Alternative 4 includes modifications to ARMS (CEQA Only), and Alternative 5 covers additional Sacramento River Mitigation options. The alternatives do not result in a change in impacts to 4.3-b “Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan,” which is identical to Impact Number 4.1-d described in Section 4.4.1 “Vegetation and Wildlife.” For additional details, please refer to the comprehensive discussion in Appendix B, Section 4.3, “Special Status Species.”

**Table 4.4.3-5. Effects of the Alternatives 3a, 3b, 3c, 3d, 4a, 4b, 5a, 5b, 5c on Special Status Species**

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3a would implement a landside berm instead of a waterside berm with similar impacts.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation	Short-term Significant and Unavoidable, Long-term and Minor effects that are Less than Significant with Mitigation
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3b would use a different permanent bike trail reroute. The route would be slightly longer than the Proposed Action.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation	Short-term Significant and unavoidable, Long-term and Minor Effects that are Less than Significant with Mitigation
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3c would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm with similar impacts.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation	Short-term Significant, Long-term Minor Effects that are Less than Significant with Mitigation
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3d would change the permanent bike trail route to a paved bike trail closer to the river along an existing off-road bike trail, resulting in a negligible increase in vegetation clearing.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation	Significant and Unavoidable short-term; Long-term Minor effects that are Less than Significant with Mitigation

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	American River Mitigation	Alternatives 4a and 4b constructs a berm to retain a portion of the existing man-made pond, reducing impact on open water habitat, but also reducing the creation of riparian habitat. Short-term construction impacts would be significant and unavoidable. The remnant pond would retain habitat used seasonally by several species.	VEG-1, VEG-2, GEO-1, WQ-1, WATERS-1, PLANT-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Short-term Significant and Unavoidable	CEQA Determination Only
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	Sacramento River Mitigation	Alternative 5a would purchase all remaining, required mitigation credits from USFWS Approved Conservation Banks.	N/A	No Impact	No Impact
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	Sacramento River Mitigation	Alternative 5b would construct Sacramento River Mitigation at Watermark Farms	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Short-term Significant and Unavoidable; Long-term Less than Significant;	Short-term Significant and Unavoidable; Long-term No Effect
4.3-a	Result in 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 CDFW, USFWS, or NMFS.	Sacramento River Mitigation	Alternative 5c would purchase Delta smelt credits and provide funding to the Sunset Pumps project to meet Sacramento River Mitigation requirements	N/A	No Impact	No Impact

## 4.5 Cultural Resources

### 4.5.1 Cultural and Tribal Resources

Below is a summary of the Cultural and Tribal Resources analysis. Please refer to Appendix B, Section 5.1 for the detailed analysis.

#### 4.5.1.1 Existing Conditions

“Cultural resources” include prehistoric and historic-era archaeological sites; architectural properties such as buildings, bridges, dams, and related infrastructure; and resources of importance to Native American communities, such as traditional cultural properties, sacred sites, and Tribal cultural resources.

In brief, the existing conditions/affected environment for cultural resources comprise the area of potential effects (APE) within which significant prehistoric, ethnographic, and/or historic-era resources could be affected by ARCF 2016 Project elements. The cultural setting within the APE consists of prehistoric and ethnographic contexts, including land use in the distant and more recent past by Native American populations, and historic-era contexts related to the activities of Euro-American explorers, missionaries, miners, farmers, and ranchers, and their interactions with indigenous people.

The cultural resources APE was determined by USACE, the lead Federal agency, and is described in the 2016 ARCF GRR Final FEIS/FEIR and the Section 106 programmatic agreement (PA) with the California State Historic Preservation Officer (SHPO), which was executed on September 10, 2015. The PA, which was included with the 2016 ARCF GRR Final FEIS/FEIR as Appendix C, is set to expire on September 10, 2025, unless extended through amendment. USACE currently is in consultation with the SHPO to extend the duration of the PA. By definition (36 C.F.R. § 800.16[d]), the APE comprises “the geographic areas or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.” “Historic properties” are cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

Under CEQA, “historical resources” are resources listed in, or determined to be eligible for listing in the California Register of Historical Resources (CRHR). However, the fact that a cultural resources not listed in, or determined to be eligible for listing in the CRHR, and not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in PRC 5024.1(g) shall not preclude a lead agency from determining that the resource may be an historical resource s defined in Public Resources Code sections 5020.1(j) or 5024.1. (Public Resource Code [PRC] 21084.1and State CEQA Guidelines Section 15064.5) “Tribal cultural resources” are defined in Section 21074 of the California Public Resources Code as: (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or (2) resources that the lead [CEQA] agency determines, in its discretion, are Tribal cultural resources.

*American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, and Magpie Creek Project*

The American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, and MCP are within the geographic extent of the APE delineated in the 2016 ARCF GRR Final FEIS/FEIR (see Section 3.9.1: Figure 14). Therefore, the Cultural and Tribal Resources environmental and regulatory frameworks described in Section 3.9 of the 2016 ARCF GRR Final FEIS/FEIR are generally applicable to the analysis in this SEIS/SEIR for the American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, and MCP components and will not be repeated in detail here.

#### *American River Mitigation Site*

The proposed ARMS was not analyzed in the 2016 ARCF GRR FEIS/EIR. It is located on the right bank of the LAR, approximately 1 mile upstream from the Sacramento and LAR confluence. The site is a former sand and gravel mine; thus, the most prominent feature of the ARMS is an approximately 55-acre man-made pond located approximately 400 feet from the river's edge. The man-made pond is filled with water due to groundwater connection with the LAR. There are known cultural resources located in the vicinity of the pond. ARMS also is within the APE, as delineated in the 2016 ARCF GRR Final FEIS/FEIR, although the mitigation work proposed for this area was not described in that document. However, the prehistoric, ethnographic and historic settings for ARMS are similar to those described within the 2016 ARCF GRR Final FEIS/FEIR and there are no notable differences. Therefore, the Cultural and Tribal Resources environmental and regulatory frameworks described in Section 3.9 of the 2016 ARCF GRR Final FEIS/FEIR are generally applicable and will not be repeated here.

#### *Sacramento River Mitigation Site*

The SRMS was not included in the 2016 ARCF GRR FEIS/FEIR and is outside of the previously established ARCF APE. It is as an active Dredged Material Placement Site (DPMS) managed by USACE located in the Sacramento-San Joaquin Delta at the confluence of Cache and Steamboat Sloughs. The site is composed of a large flat basin with riparian and herbaceous cover. While the prehistoric, ethnographic, and historic settings for Grand Island are somewhat similar to those described in the 2016 ARCF GRR FEIS/FEIR, there are some notable differences based on its location much further south of the previously described project elements, in the Sacramento-San Joaquin River Delta. The early prehistoric context for the Sacramento-San Joaquin Delta largely follows cultural sequences developed for the Central California region, as described in the 2016 ARCF GRR FEIS/EIR. The SRMS is located at what was recorded ethnographically as the interface of Bay Miwok and Plains Miwok territories (Levy 1978: Figure 1). At the time of Euro-American arrival, Miwok people relied upon annual cycles of hunting, gathering, and fishing for food, personal goods, and trade items. "Tribelets" were the predominant political unit among the Miwok, each having distinct boundaries that were generally recognized and respected by neighboring groups (Ross 2018). Ethnographic maps indicate that, in the early- to mid-1800s, two Plains Miwok tribelets – Anizumne and Quenemsia – were situated on or in very close proximity to SRMS (Levy 1978: Figure 1). The establishment of two nearby Franciscan missions, San Francisco de Asís (1776) and Mission San José (1797), and the subsequent missionization of the local Native American population permanently altered and disrupted the Miwok lifeways (Ross 2018:11). Missionization led to the forced removal of Miwok communities from their traditional lands and the prohibition of their cultural practices.

## 4.5.1.2 Environmental Effects

### 4.5.1.2.1 No Action Alternative

Under the No Action NEPA alternative only the components described in the 2016 ARCF GRR FEIS/EIR and previously prepared supplemental NEPA documents will be built. Mitigation sites, such as the ARMS and SRMS would not be built, and site conditions would remain as they are now. The ARMS and the SRMS would not be constructed, and site conditions in those locations would remain as they are now. The MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and 4B, and Sacramento River Erosion Contract 3 design would not occur and, in general, effects to cultural resources will be as previously disclosed in those locations. Additionally, impacts to the known cultural resources' sites at ARMS, and any potential sites at SRMS, will not occur, meaning there would be no impacts to Cultural and Tribal Resources in those locations under the No Action alternative. All impacts to Cultural Resources will be mitigated as discussed in the 2016 ARCF GRR FEIS/EIR pursuant to the PA, through monitoring of vegetation removal and construction activities, and treating any adverse effects resulting from post-review discoveries pursuant to the PA.

### 4.5.1.2.2 Proposed Action

**Table 4.5.1-1. Summary of Cultural Resources Effects**

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
5.1-N	Alter NRHP-listed Resources or Cause a Substantial Adverse Change in the Significance of a Historic Property	N/A	Less than Significant with Mitigation Incorporated
5.1-a	Cause a substantial adverse change in the significance of a historical resources pursuant to § 15064.5	Less than Significant	N/A
5.1-b	Cause a substantial adverse change in the significance of an archaeological resources pursuant to § 15064.5	Significant and Unavoidable	N/A
5.1-c	Disturb any human remains, including those interred outside of dedicated cemeteries.	Less than Significant with Mitigation Incorporated	N/A
5.1-d	Cause a substantial adverse change in the significance of a Tribal cultural resource.	Significant and Unavoidable	N/A

**Table 4.5.1-2. Cultural Resources Effects by Project Component**

Impact Number	Project Component	Mitigation Measure	CEQA Significance	NEPA Effects Determination
5.1-N	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network	Implement Programmatic Agreement	N/A	Less than Significant with Mitigation Incorporated
5.1-a	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, ARMS, SRMS	None	No Impact	N/A
5.1-a	Sacramento River Erosion Contract 3, Piezometer Network	None	Less than Significant	N/A
5.1-b	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Piezometer Network	CR-1, CR-2, CR-3, CR-4, CR-5	Less than Significant with Mitigation Incorporated	N/A
5.1-b	ARMS	CR-1, CR-2, CR-3, CR-4, CR-5	Significant and Unavoidable	N/A
5.1-c	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network	CR-6	Less than Significant with Mitigation Incorporated	N/A
5.1-d	MCP, American River Erosion Contract 3B north and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, SRMS, Piezometer Network	CR-1, CR-2, CR-3, CR-4, CR-5	Less than Significant with Mitigation Incorporated	N/A
5.1-d	ARMS	CR-1, CR-2, CR-3, CR-4, CR-5, CR-6	Significant and Unavoidable	N/A

***Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network***

The Proposed Action Alternative involves design refinements and new project elements for the MCP American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network. The ground disturbing construction activities associated with all these project elements have the potential to cause significant impacts to cultural resources. For NEPA purposes, any adverse effects/significant impacts to cultural resources would be mitigated through implementation of the stipulations in the PA, which include adhering to requirements specified in the PA’s associated Historic Properties Management Plan (HPMP) and any tiering Historic Properties Treatment Plan (HPTP). For CEQA purposes, significant cultural resource impacts would be reduced by implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6. For the ARMS project component, impacts would remain significant and unavoidable, but impacts would be reduced to a less-than-significant level for all other project components.

## ***Sacramento River Mitigation Site***

The 2016 ARCF GRR FEIS/EIR did not analyze the potential impacts of including a SRMS. Under the Proposed Action, the creation of this mitigation area would require ground disturbance within areas that have the potential for buried or obscured cultural resources. Therefore, it is possible that the act of excavation for proposed project elements could cause significant impacts to cultural resources. Based on the known cultural context for the SRMS APE, this could include impacts to prehistoric and historic-era archaeological resources. The SRMS does not fall within the existing APE covered under the PA. Therefore, USACE would consult with the SHPO, Tribes, and other consulting parties to include the SRMS in the APE and assess the potential effects of the proposed action on historic properties, pursuant to the stipulations of the PA. As with other components and phases of the ARCF, any significant impacts would be mitigated to less than significant for NEPA purposes through the implementation of the stipulations of the PA and its tiering management and treatment plans. For CEQA purposes, significant cultural resource impacts would be reduced to a less-than-significant level by implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6.

### **4.5.1.2.3 Alternatives**

#### ***Alternatives 3a, 3b, 3c, and 3d***

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A Project Component. All alternatives would be constrained within the construction buffer limits identified in the APE. None of these alternatives would increase effects to Cultural and Tribal Resources when compared to the Proposed Action.

#### ***Alternative 4a (CEQA-Only)***

Alternative 4a would change the ARMS by retaining the western portion of the existing man-made pond. Alternative 4a would potentially reduce or avoid effects on one archaeological site and TCR (P-34-00058/CA-SAC-31) because ground disturbance in the vicinity of this resource would be reduced compared to the ARMS but would potentially affect other resources (P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316) similarly to the potential impacts of the ARMS. Other cultural resources impacts would be similar to those described for the ARMS. Implementing Alternative 4a would have significant and unavoidable effects on cultural resources but reduced compared to the ARMS for the Proposed Action due to the potential to reduce or avoid effects on one known site.

#### ***Alternative 4b (CEQA-Only)***

Alternative 4b would change the ARMS by retaining the southern portion of the existing pond. Alternative 4a would have similar effects on one archaeological site and TCR (P-34-00058/CA-SAC-31) because ground disturbance in the vicinity of this resource would be similar to the ARMS, but this alternative would have potentially increased effects on other resources (P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316) compared to the ARMS because additional areas on the northern portion of the site would be disturbed. Other cultural resources impacts would be similar to those described for the ARMS. Implementing Alternative 4b would have significant and unavoidable effects on cultural resources, but potentially greater than the

effects of the ARMS for the Proposed Action due to the potential for greater effects on two known sites.

### ***Alternative 5a***

Alternative 5a would eliminate the need to construct the SRMS, and would include purchasing the remaining, required mitigation credits from Service approved conservation banks. Purchasing credits would have no effect on Cultural and Tribal Resources.

### ***Alternative 5b***

Alternative 5b would complete the Sacramento River Mitigation needs by constructing a mitigation site at Watermark Farms that would restore 227 acres of riverine and floodplain habitat. This alternative is conceptual only but could involve breaching the existing levee and creating a new setback levee and secondary channel. The ground disturbance required to breach the existing levee, build a setback levee, and construct a secondary channel could result in significant impacts to historic properties and other Cultural and Tribal Resources, assuming their presence in this area.

### ***Alternative 5c***

Alternative 5c includes a combination of purchasing Delta Smelt conservation bank credits, providing funding for the Sunset Pumps rock weir removal project, and assisting in funding the riparian mitigation requirements for the Sunset Pumps project. There would be no effect on Cultural and Tribal Resources by purchasing credits. The effects of the Sunset Pumps project would be covered under NEPA and CEQA documentation written by Project Proponents, including DWR, USFWS, and BOR.

# Chapter 5. Cumulative and Growth-Inducing Effects (CEQA-Only)

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CEQA requires the consideration of cumulative effects of the proposed action, combined with the effects of other projects. The CEQA Guidelines define cumulative effects as “two or more individual effects which, when considered together, compound or increase other environmental impacts” (CCR Section 15355). The consideration of cumulative effects under NEPA is not considered in this Final SEIS due to CEQ’s rescission of 40 C.F.R. parts 1500-1508, which is consistent with the January 20, 2025, Executive Order 14154, Unleashing American Energy.

“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 15064(h)(1)). 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)).

The cumulative effects of the overall ARCF 2016 Project were analyzed in the ARCF GRR FEIS/EIR (USACE 2016). The cumulative analysis in the ARCF GRR FEIS/EIR is incorporated by reference. Because the temporal scope of the analysis has changed substantially since the ARCF GRR FEIS/EIR, for the purposes of this SEIS/SEIR, the temporal scope of the cumulative effects analysis considers past and present projects that would continue to affect the project area in 2025 through 2028, and probable future projects expected to be under construction in 2025 through 2028.

## 5.1 Methodology and Geographic Scope of Analysis

### 5.1.1 Projects Contributing to Potential Cumulative Effects

This section briefly describes other similar or related projects, focusing on development, flood-risk reduction, and habitat restoration projects that have similar environmental effects and affect similar resources, as would the project components, including American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP Seepage and Stability Improvements, ARMS, and SRMS. Although the ARCF GRR FEIS/EIR identified several of these projects in the cumulative scenario, the descriptions in this section include additional projects and updated timing and schedule information.

Past and present projects and activities have contributed on a cumulative basis to the existing environment within the Project Area via different means, such as the following:

- population growth and associated development of socioeconomic resources and infrastructure.

- conversion of natural vegetation to agricultural and developed land uses, and subsequent conversion or restoration of some agricultural lands to developed or natural lands.
- alteration of riverine hydrologic and geomorphic processes by flood management, water supply management, and other activities; and
- introduction of nonnative plant and animal species.

The following past, present, and probable future projects that have related effects are considered in this cumulative effects analysis, including regional projects for which USACE has provided approval or is in the process of considering Section 408 permission. For elements of these projects proposed for future implementation, the construction timing and sequencing is highly variable and may depend on uncertain funding sources. However, each of these past, present, and probable future projects must be considered in the context of environmental effects from the proposed project to properly evaluate the cumulative effects of this action and these other similar projects on the environment.

#### **5.1.1.1 Lower American River Common Features Project**

Based on congressional authorizations in Water Resource Development Act (WRDA) 1996 and WRDA 1999, USACE, CVFPB, and SAFCA have undertaken various improvements to the levees along the north and south banks of the American River and the east bank of the Sacramento River. Under WRDA 1996, this involved constructing 26 miles of slurry walls on the Lower American River. The WRDA 1999 authorization included a variety of additional levee improvements to ensure that the levees could pass an emergency release of 160,000 cfs , such as levee raises and levee widening improvements. The WRDA 1996 and 1999 projects were mostly completed in 2014. One project component of WRDA 1999, referred to as the Triangle Project, is scheduled to begin construction in late 2023. The Triangle Project involves construction of a seepage berm on the levee between Del Paso Blvd and the Union Pacific Railroad Tracks (UPRR) and would require the removal of elderberry shrubs and have localized traffic and circulation impacts when material and equipment are imported.

#### **5.1.1.2 American River Common Features 2016 Project**

The ARCF 2016 Project is scheduled for construction from 2019 through 2028. The project involves construction of levee improvements along the American and Sacramento River levees as well as proposed improvements to the Natomas East Main Drainage Canal (NEMDC) east levee and Magpie Creek (SAFCA previously completed improvements as an early implementation action in 2018). The levee improvements scheduled for implementation include construction of cutoff walls, erosion protection, seepage and stability berms, relief wells, levee raises, and a small stretch of new levee. In addition, USACE intends to widen the Sacramento Weir. The project will also involve construction of several mitigation sites in the area.

In addition to the improvements that are part of this SEIS/SEIR, the 2016 ARCF GRR FEIS/EIR includes:

- Construction of a seepage and stability berm along Front Street (completed in 2019)

- Seepage and stability improvements to the Sacramento River east levee between downtown Sacramento and Freeport (constructed and planned for 2020-2023)
- Erosion protection on the American River (planned for 2022-2026)
- Additional erosion protection improvements on the Sacramento River (planned between 2021 and 2026)
- Improvements to the “East Side Tributaries, including the MCDC, the east bank of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, Pleasant Grove Creek Canal, and Dry, Robla, and Arcade Creeks (planned for 2025-2026)
- Widening the Sacramento Weir and Bypass, located along the north edge of the City of West Sacramento in Yolo County (planned for 2021 to 2024)

### **5.1.1.3 American River Watershed Common Features Natomas Basin Project**

In 2007, the Natomas Levee Improvement Project was authorized as an early-implementation project initiated by SAFCA to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and USACE have initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally authorized American River Common Features Project. Construction of this early implementation project was completed in 2013. In 2014, the Natomas Basin Project was authorized by Section 7002 of Water Resources Reform and Development Act of 2014 (Public Law 113-121). Construction on Reach I and Reach D began in 2018; Reach H began in 2019. Construction on Reach D will include work on the highway 99 window in 2024, and construction on Reaches H and I is expected to continue in 2023 and 2024 with pumping plant improvements and landside improvements. Construction in Reach B began in 2021 and is scheduled to be completed in 2023, with replacement of pumping plants continuing in 2024. Reach A is under construction, scheduled for completion in 2024 with Reaches E, F, and G scheduled for construction in 2023 through 2025. This action includes impacts to water quality, special status species, transportation, air quality, at-risk communities, and vegetation similar in size and scope to the ARCF 2016 Project.

### **5.1.1.4 Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area**

SAFCA created a new assessment district (“CCAD2”) to replace the existing Consolidated Capital Assessment District and updated the existing development impact fee to provide the local share of the cost of constructing and maintaining flood-risk reduction improvements and related environmental mitigation and floodplain habitat restoration along the American and Sacramento Rivers and their tributaries in the Sacramento metropolitan area. The program includes the projects necessary to provide at least a 100-year level of flood protection for developed areas in Sacramento’s major flood plains as quickly as possible; achieve the State’s 200-year flood protection standard for these areas within the timeframe mandated by the Legislature; and

improve the resiliency, robustness, and structural integrity of the flood control system over time so that the system can safely contain flood events larger than a 200-year flood. The program includes Yolo and Sacramento Bypass system improvements, levee modernization, and Lower Sacramento River erosion control. The Updated Local Funding Mechanisms Final Subsequent Program EIR was certified, and the project was adopted in April 2016 (SAFCA 2016).

#### **5.1.1.5 Sacramento River Bank Protection Project**

The mission of the Sacramento River Bank Protection Project (SRBPP) is to repair bank erosion and minimize the risk of flooding along the Sacramento River by evaluating riverside levees and rehabilitating sections of the levees, if necessary. Section 203 of the Flood Control Act of 1960 was the original authority for SRBPP, giving USACE authorization to implement rehabilitation of 430,000 linear feet of levee. Authority to rehabilitate an additional 405,000 linear feet of levee was added by the 1974 WRDA. In 2007, the WRDA, Pub. L. 110-114, § 3031, 121 Stat. 1113 (2007) (WRDA 2007) added 80,000 linear feet to SRBPP as a supplement to the 1974 legislation.

#### **5.1.1.6 West Sacramento General Reevaluation Report**

The West Sacramento Project General Reevaluation Report (WSPGRR) determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the WSPGRR is to bring the 50-miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements would address: (1) seepage, (2) stability, (3) overtopping, and (4) erosion concerns along the West Sacramento levee system. Potential measures to address these concerns would include: (1) seepage cutoff walls, (2) stability berms, (3) seepage berms, (4) levee raises, 5) flood walls, (6) relief wells, (7) sheet pile walls, (8) jet grouting, and (9) bank protection. The WSPGRR was authorized in WRDA 2016, and in the Fiscal Year 2019 work plan received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along the Sacramento River in the northern portion of the city near the neighborhood of Bryte, and the south levee of the Sacramento Bypass. One levee segment, the Southport setback levee, was constructed as part of the local effort, which includes all the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin.

A Final Environmental Assessment/Initial Study (EA/IS) for the West Sacramento Project, Yolo Bypass East Levee was completed in 2022 by USACE, Sacramento District and the West Sacramento Area Flood Control Agency. Construction for Yolo Bypass East Levee South-began in the summer of 2023 and will be completed in April 2024.

#### **5.1.1.7 I Street Bridge Replacement Project**

The I Street Bridge Replacement Project will include the construction of a new bridge upstream of the existing I Street Bridge. The bridge will provide a new vehicle, bicycle, and pedestrian connection across the Sacramento River between the Sacramento Railyards and the West Sacramento Washington Neighborhood. The existing I Street Bridge's lower deck will continue

to serve as a railroad crossing, and the upper deck is planned for use by pedestrians and bicyclists. The approach viaducts to the existing I Street Bridge will be demolished. Construction of the I Street Bridge replacement project is planned between 2024 and 2027.

### **5.1.1.8 Central Valley Flood Protection Plan of 2022**

The Central Valley Flood Management Planning (CVFMP) Program is one of several programs managed by DWR under Flood SAFE California, a multifaceted initiative launched in 2006 to improve integrated flood management in the Central Valley, including the North Sacramento Streams and Sacramento River east levee (proposed project) Improvement areas. The CVFMP Program addresses State flood management planning activities in the Central Valley. The CVFPP is one of several documents adopted by CVFPB to meet the requirements of flood legislation passed in 2007 and, specifically, the Central Valley Flood Protection Act of 2008. DWR prepared and CVFPB adopted updates to the CVFPP in 2017 and 2022. The 2017 update focused on Sacramento and San Joaquin Watershed Basin-Wide Feasibility Studies (BWFS), Regional Flood Management Planning, and the Central Valley Flood System Conservation Strategy. The 2022 update focused on climate resilience, performance tracking, and alignment with other State efforts, recommending priority actions to address flood risk. The CVFPP contains a broad plan for flood management system improvements, and ongoing planning studies, engineering, feasibility studies, designs, funding, and partnering are required to better define, and incrementally fund and implement, these elements over the next 20 to 25 years. Although most CVFPP projects are not well-defined and would be implemented substantially later than the proposed project, it is important to consider the long-term aspects of the CVFPP in conjunction with this action and the next update would be in 2027.

The Sacramento Basin-Wide Feasibility Studies (BWFS) indicates that the following improvements to the Yolo Bypass flood control system could be made and therefore are considered as future projects: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below), widening the Fremont Weir and the Sacramento Weir, widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin, constructing fix-in-place improvements to the existing levees in various locations along the west and east sides of the Upper Yolo Bypass, widening the Upper Yolo Bypass by constructing setback levees north of Willow Slough and north of Putah Creek on the west side of the Bypass, adding a tie-in to the Stockton Deep Water Ship Channel and channel closure gates, and constructing a floodwall on the west side of the Sacramento River at Rio Vista. Additional actions contemplated under the Sacramento BWFS include the following: extending the life of the Cache Creek Settling Basin by expanding it to the north, degrading the step levees at the north end of Liberty Island, widening the Lower Yolo Bypass by constructing a setback levee on the west side of the Bypass near the north end of Little Egbert Tract, degrading the existing levees along the Stockton Deep Water Ship Channel along the west side of Prospect Island, degrading the existing levees on the northern and southern ends of Little Egbert Tract, removing the Yolo Shortline Railroad tracks and crossing over the Yolo Bypass near the Interstate 80 overcrossing, and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass.

### **5.1.1.9 Yolo Bypass Cache Slough Partnership Master Plan**

The Yolo Bypass Cache Slough (YBCS) Partnership (a group of 15 agencies) is proposing to implement a program to coordinate numerous related projects in the Yolo Bypass over the next 25 years to provide essential flood conveyance capacity in the Yolo Bypass while improving its resiliency, reliability, and adaptability to changing conditions; enhancing aquatic and terrestrial species habitats; and preserving agricultural land and economic values. Projects that are being considered for implementation under the YBCS Partnership Master Plan include: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below); widening the Fremont Weir and the Sacramento Weir; widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin; constructing fix-in-place improvements to the existing levees in various locations along the west and east sides of the Upper Yolo Bypass; habitat restoration projects throughout the Yolo Bypass, changes to the Cache Creek Settling Basin; degrading the step levees at the north end of Liberty Island; and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass.

### **5.1.1.10 Lower Elkhorn Basin Levee Setback Project**

The Lower Elkhorn Basin Levee Setback (LEBLS) project encompasses a portion of the Phase I implementation of Yolo Bypass System Improvements pursuant to DWR's Sacramento BWFS and therefore is focused on levees in the Lower Elkhorn Basin and the Sacramento Bypass. Consistent with the Sacramento BWFS, the LEBLS project is intended to reduce flooding in the Lower Sacramento River Basin by increasing the capacity of the Yolo Bypass. This increased capacity would be accomplished by constructing a setback levee on the north side of the Sacramento Bypass as an early implementation action for the ARCF 2016 Project and constructing a setback levee in the Lower Elkhorn Basin on the east side of the Yolo Bypass.

The LEBLS project includes implementing a project mitigation strategy designed to avoid, minimize, reduce, and mitigate impacts on sensitive habitats and special-status species caused by the project, in a manner that optimally protects the natural environment, especially riparian habitat and stream channels suitable for native plants, wildlife habitat, and public recreation. Construction of the LEBLS project is planned to be completed in 2024. Construction effects of the LEBLS project have the potential to contribute to cumulative impacts with the proposed project and other ARCF 2016 Projects not included in this SEIS/SEIR, particularly the Sacramento Weir Widening, including impacts to giant garter snake habitat, elderberries, trees, seasonal wetlands and fishery resources.

In conjunction with the Yolo Bypass improvement system associated with the Sacramento Weir Widening Project and LEBLS, a pre-existing, outdated landfill of approximately 13-acres was permanently remediated. The Bryte Landfill Remediation was implemented by SAFCA to remove the landfill site from the existing floodway in the existing north levee of the Sacramento Bypass near its confluence with the Yolo Bypass east levee. Remediation would prevent the dispersal of potentially toxic materials during a flood event. Construction was planned for completion in the summer of 2023.

### **5.1.1.11 Folsom Dam Safety and Flood Damage Reduction Project**

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project (JFP) between USACE, the Bureau of Reclamation and their non-Federal partners, addressed the dam safety hydrologic risk at Folsom Dam and improved flood protection to the Sacramento area. Several activities associated with the project included: the Folsom Dam Auxiliary Spillway, static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam. The project was completed in fall 2017.

### **5.1.1.12 Folsom Dam Water Control Manual Update**

USACE is updating the Folsom Dam Water Control Manual (WCM) to reflect authorized changes to the flood management and dam safety operations at Folsom Dam to reduce flood risk in the Sacramento area. The WCM manual was updated in 2018 following the completion of the JFP but is being revised a second time in consideration of flood operation changes that will be made as a result of Folsom Dam Raise. Changes to the WCM do not apply to normal operations; however, flood operations will be evaluated to determine if there are downstream effects to the Lower American River fishery and riparian habitat as a result of the changes.

### **5.1.1.13 Folsom Dam Raise**

Construction of the Folsom Dam Raise project followed completion of the JFP and the WCM update. The Dam Raise project includes refinements to the Main Dam tainter gates and raising the Right- and Left-Wing Dams, Mormon Island Auxiliary Dam, and Dikes 1-8 around Folsom Reservoir by 3.5 feet. The Dam Raise project also includes three ecosystem restoration projects (one of which being modification of the temperature control shutters at Folsom Dam). Similar to the ARCF 2016 Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction to raise Dike 8 was completed in 2020. Construction of the Main Dam, Right- and Left- Wing Dams, Dikes 1-6, and Mormon Island Auxiliary Dam will begin in 2023. The design for Dike 7 is complete and construction is anticipated in 2024. Raises on these facilities is planned to continue into 2028. Construction and construction traffic effects of the Folsom Dam Raise project have the potential to contribute to cumulative impacts with the proposed project.

### **5.1.1.14 U.S. Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project**

Caltrans District 3 is working on constructing High Occupancy Vehicle lanes and rehabilitating pavement on US 50 from I-5 to Watt Ave. This project will include activities such as adding a carpool lane to each direction of U.S. 50, replacing pavement, constructing retaining walls, improving ramps, widening bridges, raising bridges, replacing signs, and replacing lighting (Caltrans 2022). This work has required lane closures, lane shifts and speed limit reductions on U.S. 50 (Caltrans 2022). Work will require pile driving and other loud construction activities (Caltrans 2022). Construction for this work is scheduled to be finished by the end of 2024 or early 2025 (Caltrans 2022). Caltrans work on Highway 50 may exacerbate traffic effects for hauling materials generated by the multiple Civil Works activities going on in the region at the same time.

### **5.1.1.15 Lower American River Anadromous Fish Habitat Restoration Project**

The City of Sacramento and the U.S. Bureau of Reclamation (BOR) proposes to replenish spawning gravel, to create/enhance side channel, floodplain habitat and in-stream habitat structures between RM 13 and 23 of the LAR (City of Sacramento and BOR 2019). This would involve a maximum 30,000 tons of gravel placed in the LAR yearly, not to exceed a total of 450,000 tons over the 16-year duration of the project (City of Sacramento and BOR 2019). This project would result in an enhancement of the substrate for the anadromous fishery (steelhead and fall-run/late fall-run Chinook salmon).

### **5.1.1.16 City of Sacramento Water Treatment Plants Resiliency and Improvements Project**

The City of Sacramento is proposing to replace aging infrastructure at the E.A. Fairbairn Water Treatment Plant, which is between Sacramento State University and Howe Avenue on the south bank of the American River. This project consists of rehabilitating aging infrastructure, integrating ozone generation and contact, and conversion from chlorine gas treatment to sodium hypochlorite at both the E.A. Fairbairn Water Treatment Plant and the Sacramento River Water Treatment Plant (City of Sacramento 2022).

### **5.1.1.17 Interstate 80 Corridor Improvement Project**

The California Department of Transportation proposes to construct improvements consisting of managed lanes, pedestrian/bicycle facilities, and Intelligent Transportation System (ITS) elements along Interstate 80 (I-80) and United States Route 50 (US-50) from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and Interstate 5 on US-50 in Sacramento County.

The project proposes to add auxiliary lanes at eastbound I-80 between Old Davis Rd and Richards Blvd and WB I-80 between Jefferson Blvd and Harbor Blvd, widen the roadway to the median or to the outside, cold planning, reconstruction of roadway structural sections, construction of Clear Recovery Zone, extension or replacement of existing cross culverts, installation of ITS components and overhead signs, restriping, potential construction of soundwalls, modification of roadside ditches, bicycle and pedestrian facility improvements, and installation of a new park and ride facility. This would enhance multi-modal infrastructure and recreational opportunities in the region.

### **5.1.1.18 Mayhew Drainage Channel Closure Structure Gate Hoist Improvement Project**

The project proposes to install a catwalk structure with mechanisms for safely lifting and securing the closure structure steel flap gates across the Mayhew Drainage Channel. The Mayhew Drainage Channel drains an area south of the American River and west of Bradshaw Road known as Mayhew Slough. Near the connection of the channel with the American River, there is a control structure with steel flap gates, which function to prevent backflow from the river up the channel during high water elevation in the American River.

The Mayhew Drainage Channel Closure Structure Gate Hoist Improvement Project proposes to install a catwalk structure with mechanisms for safely lifting and securing the closure structure steel flap gates across the Mayhew Drainage Channel to permit maintenance of the structure and removal of debris from behind the gates without the risk of accidental closure. The catwalk structure will be anchored on the walls of the drainage channel so that there would be no ground disturbance while constructing the catwalk. A concrete pad will be built to the east of the channel that will be used as a staging area for the project. The lifting mechanism would be housed on a trolley that would be moved along the catwalk, which would then lift the steel flap gate. With the gate open, maintenance workers and equipment can access the channel area behind the gate. Construction is planned for {Add season and year} occurring over approximately 3 months. As planned, construction would occur during the day with no nighttime activities.

#### **5.1.1.19 Interstate 5 Richards Boulevard Interchange Project**

The City of Sacramento proposes the I-5 Richards Boulevard Interchange Improvements Project to alleviate traffic congestion at I-5 and Richards Boulevard Interchange during peak commute hours. Congestion is expected to worsen as future development occurs in the area unless improvements are made to the transportation system. The project will address long-term solutions including improvements relating to congestion and accommodations for future traffic volume as the region continues to grow. The interchange will be designed to accommodate a 20-year traffic forecast from the year it is completed.

The proposed project includes four alternatives and bicycle and pedestrian connections. Three of the alternatives are variations of a type of interchange referred to as a diverging diamond interchange (DDI). The DDI is an alternative to conventional interchange forms because it is designed with directional crossovers between signals. This eliminates the need for left turning vehicles to cross the paths of approaching through vehicles. Project construction is expected to be completed in 2023.

#### **5.1.1.20 North 16th Street Improvements**

The City of Sacramento is developing concepts to revitalize the 16<sup>th</sup> Street and North 16<sup>th</sup> Street corridor between H Street and Richards Boulevard through streetscape improvements.

The River District Specific Plan, adopted in 2011, envisioned North 16<sup>th</sup> Street as an area for eclectic and lively arts, entertainment and commercial use that will attract visitors and shoppers. This project will contribute to the goals of the plan through the implementation of improvements to make the corridor attractive and inviting to businesses, customers, and pedestrians. Proposed improvements will include new curb, gutter and sidewalk, landscaping, signage and lighting, along with re-striping the travel lanes to accommodate on-street parking.

This project will create a corridor that is friendly and inviting for pedestrians, and attractive for new and existing businesses and visitors through sidewalk improvements, landscaping, lighting, public art, and the addition of parking. Due to funding constraints, this project has been put on hold and construction has not been scheduled. However, it may be funded towards the end of the construction window for the Proposed Action.

### **5.1.1.21 Capitol Conservation Bank**

Yolo County Planning and Public Works completed the Capitol Conservation Bank project in 2014. The is a Use Permit, a Flood Hazard Development Permit, and a Williamson Act Successor Agreement, to construct the first and second phases of a 320--acre wildlife conservation bank for the giant garter snake, an endangered species. The property is located at the north end of County Road (CR) 107 and east of CR 152 within Yolo Bypass area, approximately 10 miles southeast of the City of Davis.

### **5.1.1.22 Decker Island Tidal Habitat Restoration Project**

The DWR Fish Restoration Program (FRP) acquired approximately 140 acres on Decker Island in 2015 for tidal wetland restoration. Decker Island is bordered on the west by the Sacramento River and on the east and south by Horseshoe Bend. The goal of the project is to restore unrestricted tidal connectivity to the interior of Decker Island to create a tidal wetland and associated high marsh, and riparian habitats on the site to benefit native fish species. To achieve this goal, the project will involve breaching the perimeter levee to restore tidal hydrology to the site. The project consists of restoration planning, modeling, design, permitting, construction, and monitoring.

### **5.1.1.23 Rio Vista Estuarine Research Station**

DWR and USFWS propose to construct the Delta Research Station (DRS). The DRS would consolidate ongoing Interagency Ecological Program (IEP) research and monitoring activities throughout the San Francisco Bay-Sacramento -San Joaquin River Delta (Bay-Delta) and provide facilities for study and production of endangered Delta fishes. The two main facilities that would make up the DRS are the Estuarine Research Station (ERS) and the Fish Technology Center (FTC).

The purpose of the DRS is to enhance interagency coordination and collaboration by developing a shared research facility. The ERS would consolidate existing IEP program currently located throughout the Delta, and the FTC would house a new program to develop and apply captive propagation technologies in support of population restoration. Currently, Federal and state agency staff working on similar Bay-Delta issues are distributed among different locations that are often remote from the Bay-Delta. Construction and operation of the DRS would reduce travel times and costs and improve research and monitoring activity efficiency.

### **5.1.1.24 Dutch Slough Tidal Marsh Restoration Project**

The Dutch Slough Tidal Marsh Restoration Project is one of the first major tidal wetland restoration sites in the Sacramento-San Joaquin Delta to be implemented by DWR. The project is also part of California EcoRestore, an initiative to coordinate and advance at least 30,000 acres of critical habitat restoration in the Delta by 2020.

The project has three main goals: 1) Benefit native species by re-establishing a natural ecological network, especially for Delta species currently in decline; 2) Contribute to scientific understanding of ecological restoration in the Delta; 3) Provide shoreline access, education, and recreational opportunities.

The Dutch Slough Project is located on the west Delta, within Oakley, a city with a population over 40,000 in Contra Costa County. It contains three parcels located on the western edge of the Delta. Before construction, Dutch Slough originally sat along a high-grade slope, with site elevations ranging from six feet above sea level to six feet below sea level. In May 2018, DWR began smoothing the grade of that slope by excavating soil from higher elevations and moving it to lower elevations. The grading and channel excavation and initial revegetation efforts are complete now. DWR, along with River Partners, planted about 25,000 tule plugs and 50,000 shrubs and trees. Following approximately 1.5 years of plant growth, a levee breach will allow water from the Delta channels to flow in and out with the daily tides. Ultimately, the project will reestablish a tidal marsh, creating a rich habitat for fish and wildlife.

#### **5.1.1.25 Lambert Road Flood Flight**

Sacramento County submitted a Notice of Preparation of a Draft EIR for the Lambert Road Flood Flight Project in July 2018. The proposed project involves deploying a 1,500 linear foot "flood fight barrier", during a flood, within the Lambert Road right-of-way as it crosses Snodgrass Slough to reduce flood flows from overtopping the roadway into the Point Pleasant community. The barrier will be placed on the bridge, extending into both the east and west approaches and will consist of K-rail and/or other flood resistant material. The anticipated barrier may range from 24 to 32 inches in height.

#### **5.1.1.26 Lindsey Slough Freshwater Tidal Marsh Enhancement Project**

The Lindsey Slough Freshwater Tidal Marsh Enhancement Project is located within the Delta region in Solano County, California. The Calhoun Cut Ecological Reserve is located on the northwest edge of the Delta, west of the confluence of Lindsey Slough, Barker Slough, and Calhoun Cut. The Solano Land Trust and CDFW, owner of the property, developed a restoration plan for the Reserve to enhance aquatic, wetland, and riparian habitats.

The goal of the Project is to benefit native floral and faunal species and improve water quality. This would be accomplished by restoring a connected freshwater tidal marsh riparian community, along with other significant wetland habitat, in the vicinity of Calhoun Cut, without adversely impacting surrounding land and water uses. The restoration of the tidal channel system to Lindsey Slough consists of removing several existing features that restrict flow through the slough and excavating starter channels to initiate evolution of the slough channel.

#### **5.1.1.27 Lisbon Weir Fish Passage Enhancement**

The Lisbon Weir Modification Project is located in the Tule Canal/Toe Drain at the Lisbon Weir structure in the Yolo Bypass, adjacent to the Yolo Bypass Wildlife Area owned by CDFW in Yolo County. The Lisbon Weir is maintained and operated by Los Rios Farms consistent with the terms of the 1991 Mace Ranch Agreement. There is currently no state or Federal project description developed for modifications to the Lisbon Weir, although conceptual designs have been proposed by engineers at the California Department of Water Resources that include raising the existing flap gate structure, constructing a high and low rock ramp, and creating a new flap gate structure.

### **5.1.1.28 Lower Putah Creek Realignment Project**

The Lower Putah Creek Realignment Project, proposed by Yolo Basin Foundation, DWR, and BOR, will restore ecological functions and enhance fish passage in Lower Putah Creek, from the Putah Diversion Dam through the Yolo Bypass Wildlife area (YBWA). For the purposes of project planning, Lower Putah Creek has been divided into two reaches: the Upper Reach, from the Putah Diversion Dam to the western boundary of the YBWA; and the YBWA reach, from the western boundary of the YBWA to the Toe Drain.

This project description focuses on the YBWA Reach, which lies entirely within the Yolo Bypass (the Upper Reach lies outside the bypass, except for an approximately 2.5-mile reach between the western Yolo Bypass Levee and the YBWA boundary). The 2009 NMFS Biological Opinion on the coordinated Long-Term Operations of the Central Valley Project and State Water, Reasonable and Prudent Alternative (RPA) Action I.6.3 focused on the Lower Putah Creek YBWA reach. On the YBWA reach, the project would create a new, realigned channel from the existing Putah Creek channel at the western YBWA boundary that would cross the YBWA, connect to tidal channels previously restored by CDFW at the southeast end of the YBWA, and enter the Toe Drain downstream of Lisbon Weir. The channel design would provide fish passage for salmonids, increase area of wetland habitat subject to tidal influence in the CDFW restored tidal area, and increase the area of floodplain rearing habitat for species of management concern (specifically salmonids).

This project is located in the Yolo Bypass along the existing Lower Putah Creek channel, including the Los Rios Check Dam, and the realigned creek will go through the recently restored tidal marsh habitat on the California Department of Fish and Wildlife's Yolo Bypass Wildlife Area in Yolo County (site map attached). The Los Rios Check Dam is owned by CDFW and operated by Los Rios Farms. The new infrastructure would be owned and operated consistent with the current agreement.

### **5.1.1.29 Lower Yolo Ranch Restoration Project**

The Lower Yolo Ranch Tidal Restoration Project is located in the Delta. The project will restore about 1,670 acres on a site which has historically been used for pasture/cattle grazing. The project is a collaboration between multiple agencies including DWR and the site owner, Westlands Water District, which serves western Fresno and King counties. Westlands plans to transfer long-term ownership of the site to DWR upon final crediting approval. DWR and its partner, the California Department of Fish and Wildlife, will ensure long-term land management and will monitor habitat establishment and performance.

The tidal wetland restoration includes new tidal channels, berm breaches, new tide gates, new diversion structures, a relocated lift pump structure, new drainage ditches, and integration with irrigated agriculture. Project restoration will have no impacts on levees or flood protection abilities of the bypass. The Lower Yolo Ranch restoration effort will provide approximately 1,700 acres for Delta Smelt, 1,800 acres of salmonid rearing habitat, and 1,200 acres of Swainson's Hawk habitat and an agricultural easement (on Westlands Water District retained lands).

### **5.1.1.30 Montezuma Wetlands Restoration Project, Phase I**

The Montezuma Wetlands Restoration Project, owned and operated by the Montezuma Wetlands LLC, is located Solano County, at Montezuma Slough near the eastern end of the Suisun Marsh and aims to restore 1,800 acres of tidal wetlands. Phase 1 of the project consists of tidal and seasonal wetland restoration on approximately 630 acres of currently diked baylands. The project includes initial placement of dredged materials to raise the site elevation followed by additional construction activities and then breach of the existing dikes to enable tidal action on the site. Most of the dredged material has been placed.

### **5.1.1.31 North American Wetlands Conservation Act 3 – Lower Putah Creek Floodplain Restoration**

The Lower Putah Creek Floodplain Restoration project is located in Lower Putah Creek, adjacent to I-505 and the City of Winter, CA. The site area north of the creek is owned by the City of Winters and south of the creek is owned by Solano County. The purpose of the project is to improve fish and wildlife habitat by improving the form and function of the creek's floodplain and low-flow channels. The primary action of the project is grading for the purpose of increasing the floodplain areas that is suitable for natural recruitment and growth of high value native plants and narrowing a wide segment of the low-flow channel to reduce water temperatures for the benefit native aquatic life, such as chinook salmon and rainbow trout.

### **5.1.1.32 North Delta Fish Conservation Bank**

The 811-acre North Delta Fish Conservation Bank (Bank) is located on Liberty Island within the Yolo Bypass in Yolo County, California. The Bank lies on the northern tip of the island next to the Liberty Island Conservation Bank. The goal of the North Delta bank is to restore, enhance and manage habitat beneficial to Delta fish species. Restoration activities at the Bank will create and enhance accessible rearing habitat consisting of tidal marsh complex (a mosaic of tidal emergent marsh, seasonal wetland, interior riparian scrub shrub, and shallow open water habitat), tidal channel, open water, upland level, tule SRA, and riparian SRA.

The bank was approved by USFWS, CDFW, and NMFS for projects requiring salmonid, Delta smelt, and longfin smelt mitigation. The service area for salmonids and Delta smelt includes the boundaries of the Delta, while the longfin smelt service area includes the Delta, Honker Bay, Suisun Bay, Grizzly Bay, San Pablo Bay, San Francisco Bay, the Napa River, and any major tributaries as approved by CDFW.

### **5.1.1.33 North Delta Flood Control and Ecosystem Restoration Project**

The North Delta Flood Control and Ecosystem Restoration Project consists of flood control and habitat improvements where the Mokelumne River, Cosumnes River, Dry Creek, and Morrison Creek converge. Flood flows and high-water conditions in this area threaten levees, bridges, and roadways. The project will reduce flooding and provide contiguous aquatic and floodplain habitat along the downstream portion of the Cosumnes River Preserve by modifying levees on McCormack-Williamson Tract and at Grizzly Slough.

The project is implemented by BOR with the goal of improving flood protection while restoring floodplain and tidal marsh habitats.

#### **5.1.1.34 Prospect Island Tidal Habitat Restoration Project**

Prospect Island is a 1,600-acre property located in southeast Solano County, in the northwestern part of the Delta. The site is bound on the east by Miner Slough, on the west by the DWSC, on the south by the confluence of the DWSC and Miner Slough, and on the north by an east-west levee that runs from Arrowhead Harbor Marina to the DWSC. It is located just east of the naturally restored 4,500-acre Liberty Island. Both the northern, 1,300-acre portion and the southern, 300-acre portion of Prospect Island are owned by DWR.

The project aims to restore between 1,000 and 1,500 acres of tidal and sub-tidal restoration. Specific project objectives include to enhance productivity and food availability for Delta Smelt and other native fishes, increase salmonid rearing habitat, increase habitat to support other listed species, provide ecosystem benefits including water quality enhancement, recreation, and carbon sequestration, promote future habitat resiliency, and avoid establishment or spread of exotic invasive species.

#### **5.1.1.35 South Canal Diversion Fish Screen Project**

The South Canal Diversion Fish Screen Project, implemented by the Yuba County Water Agency, will improve the South Canal Diversion on the Yuba River by replacing the existing rock gabion fish barrier with a state-of-the-art fish screen facility to eliminate entrainment of salmonids and other native fish within the South Canal Diversion Pond and the South Canal while maintaining water deliveries to irrigators and minimizing long-term maintenance and repair costs. Funding will be used to complete environmental compliance, identify the preferred project, design the project, and obtain permits to advance the project to the implementation phase. The project would protect juvenile anadromous fish in the Yuba River by improving the South Canal intake.

#### **5.1.1.36 Fremont Weir Adult Fish Passage Modification Project**

The Fremont Weir Adult Fish Passage Modification Project is located in the Upper Yolo Bypass. The Fremont Weir is owned by the Sacramento-San Joaquin Drainage District and agricultural crossing are owned by Knaggs Ranch.

The project improves adult fish passage at the Fremont Weir along the Tule Canal by widening and deepening the existing fish ladder at the Fremont Weir. The maximum flow through the fish passage structure is limited to approximately 1,100 cfs, and the upstream and downstream adjoining channels are reconfigured to accommodate migratory fish passage. Replacement of an existing earthen agricultural road crossing with a permanent crossing allows for clear passage of migratory fish.

#### **5.1.1.37 Tule Red Tidal Restoration Project**

The Tule Red Tidal Restoration Project restored 420 acres of marsh habitat on the eastern edge of Grizzly Bay in the Suisun Marsh. The project provides self-sustaining tidal marsh to benefit

listed fish and wildlife species, including Delta Smelt, Longfin Smelt, and Salmonids. The restoration of Tule Red contributes to the 8,000-acre tidal marsh restoration requirements for the Central Valley Project and State Water Project Long-term Operational Criteria and Plan (OCAP) Biological Opinion.

#### **5.1.1.38 Winter Island Tidal Habitat Restoration Project**

The Winter Island Tidal Habitat Restoration Project restores tidal connectivity to the interior of Winter Island to create aquatic habitat at intertidal and shallow sub-tidal elevations, associated high marsh, and riparian habitats on the site to benefit native fish species. The goal of the project is to restore unrestricted tidal connectivity to the interior of Winter Island to create tidal wetland, associated high marsh, and riparian habitats on the site to benefit native fish species. To achieve this goal, the project breached the perimeter levee to restore tidal hydrology to the site.

#### **5.1.1.39 Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project**

The Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (the Big Notch Project) is a 30,000-acre floodplain habitat restoration and fish passage project in the Yolo Bypass in Yolo County. The project will expand floodplain rearing habitat for juvenile salmon and improve access through the bypass for salmon and sturgeon, which is pivotal to the recovery of these threatened and endangered fish species. Part of the project includes the removal of a section of the Fremont Weir, the installation of three gates, the excavation of 180,000 cubic yards to carve a new path for salmon, and construction of a control building and pedestrian bridge.

When the project is finished in late 2023, the gated passage, or notch, will be opened when the Sacramento River is high enough to flow into the Yolo Bypass floodplain. The water will enter the bypass through the notch at Fremont Weir and create shallow-water habitat for fish to easily migrate through the area. Juvenile salmon will be able to feed in a food-rich area for a longer time, allowing them to grow more rapidly in size, improving their chances of survival as they travel to the Pacific Ocean. Adult salmon and sturgeon will benefit from improvements that will reduce stranding and migratory delays due to passage barriers.

#### **5.1.1.40 Yolo Flyway Farms Restoration Project**

The Flyaway Farms Tidal Habitat Restoration Project was completed by DWR to restore sub-tidal, intertidal, and seasonal wetlands to benefit native fish species. The project is located adjacent to the Tule Canal at the southern end of the Yolo Bypass in southern Yolo County. The project involved restoring and enhancing approximately 300 acres of tidal freshwater wetlands and an additional 30 acres of seasonal wetlands by reconnecting the Project site to tidal action. The project excavated interior channels and graded and planted benches to support tidal wetland habitat. The channels were connected to tidal action by excavating a connection to the Tule Canal. Construction was completed in 2018.

#### **5.1.1.41 Sump 151 Pump Outfalls Replacement Project**

The City of Sacramento will be replacing the outfalls for Sump 151, which is located on the right bank of the American River near Lathrop Way, just upstream of the American River Erosion Contract 4A project site. Work is anticipated to be completed in 2024.

## 5.2 Cumulative Impacts Analysis

### 5.2.1 Transportation and Circulation

The 2016 ARCF GRR FEIS/EIR did not evaluate cumulative impacts to Transportation with the compressed construction calendar that is currently proposed. Some other ARCF 2016 Projects, discussed in the No Action Alternative, could have overlapping haul routes if there are schedule delays for these existing projects. In particular American River Contract 3A has overlapping haul routes with American River Contract 3B along a portion of Howe Avenue, Hurley Way, Ethan Way, Exposition Boulevard, and Arden Way. Overlapping haul routes would result in potentially more severe impacts to transportation-related programs, ordinances or policies, increased transportation-related hazards, and inadequate emergency access.

Cumulative transportation impacts could result if the Interstate 80 Corridor Improvement Project that is planned for implementation by the California Department of Transportation (Caltrans) were to occur at the same time as the Proposed Action. Additionally, overlapping haul routes exist with the American River Mitigation Project and American River Contracts 4A and 3B due to primary haul routes on the I-80 corridor specifically along I-80 Business. Heavy trucks would be transporting materials via these routes to access project sites, which are expected to have an impact on traffic congestion and traffic patterns. Construction for the I-80 Corridor Improvement Project is expected to begin in 2025 during which time through-traffic is expected to increase in the above-mentioned areas.

Other potential cumulative impacts to transportation include overlap with the Interstate 5 Richard Boulevard Interchange Project and American River Contract 4A. The I-5 Interchange at Richards Boulevard will be in final design by summer 2023, so construction in 2025 or 2026 could potentially interfere with construction haul routes for the American River Contract 4A, which include Richard Boulevard and I-5. This would be a considerable contribution to a significant cumulative impact on traffic.

In addition, Caltrans is implementing the U.S. 50 Multimodal Corridor Enhancement and Rehabilitation Project which has project components on U.S. 50 from I-5 to Watt Avenue, potentially overlapping with haul routes for American River Contract 3B. Construction is expected to occur in 2025 and 2026 resulting in potentially considerable cumulative impacts to transportation as both projects may increase traffic on nearby local routes.

Transportation mitigation measures for American River Contract 4A and 3B include implementation of a traffic control plan under TRANS-1. Transportation impacts including conflicts with local plans, policies, or ordinances and increased transportation hazards for project components are determined to be significant and unavoidable; similarly, cumulative impacts would remain significant and unavoidable. Implementing TRANS-1 would reduce impacts related to inadequate emergency access and therefore would not result in a cumulatively considerable impact.

### 5.2.2 Recreation

Because of the high recreational value of the American River and Sacramento River, any major project that occurs within the American River Parkway or along the Sacramento River could

have a significant cumulative impact to recreation if the timelines of the projects are close. Because the Proposed Action and related projects require closures and disruptions to portions of nearby parks and recreational areas, impacts to recreation would be unavoidable.

Previously completed work from the ARCF 2016 Project that would be completed in the years just prior to the Proposed Action could have a significant cumulative impact on recreation resources in the area due to the closure and disruption to some recreational facilities and increased use of other nearby recreational facilities. Also, if there are schedule delays for previous ARCF 2016 Projects, there could be larger portions of the American River Parkway, or the Sacramento River Parkway closed at once. In addition, a higher density of local parks could be closed at once. In particular American River Contract 3A is upstream of American River Contract 4A and downstream of American River Contract 3B. Overlapping construction work could close a large portion of the American River Parkway. In addition, if the Sacramento River Bank Protection Project, the West Sacramento GRR Project, and restoration projects associated with the Folsom Dam Raise occur within a few years of the Proposed Action, there would be a short-term significant cumulative impact on recreation in the American River Parkway and along the Sacramento River. Since the Proposed Action is along long stretches of riverbank for both the American River and Sacramento River, the Proposed Action would result in a considerable contribution to the short-term significant cumulative impact on recreation.

There are many upcoming projects within the Delta. If many of the projects occur at the same time as the Proposed Action, the Proposed Action could contribute to a significant cumulative impact on boaters in the area. The SRMS, Decker Island Tidal Habitat Restoration Project, Rio Vista Estuarine Research Station, North Delta Fish Conservation Bank, Lookout Slough Tidal Habitat Restoration and Flood Improvement Project, Prospect Island Tidal Habitat Restoration Project, and Winter Island Tidal Habitat Restoration Project could all have a short-term significant cumulative impact on boaters wanting to recreate in the area if the timelines are close enough. All these projects involve work near the riverbank, so during construction the riverbank views could degrade the recreational experience of boaters, especially if many projects in the area have riverbank work around the same time. The Proposed Action would include habitat mitigation over time, so over time the vegetation would regrow and return to the natural visual state. However, during the first several years of vegetation growth, there would be little to no vegetation on site due to the time needed for vegetation to mature. Additionally, all these projects, except for the Rio Vista Estuarine Research Station, include habitat improvement and would result in a significant cumulative impact due to project overlap and the time needed for vegetation to mature onsite. The Proposed Action would result in a considerable contribution to a significant cumulative impact if the Proposed Action timeline overlaps with the other projects.

### **5.2.3 Public Utilities and Services**

Impacts to public utilities and service systems, such as temporary interruptions of natural gas, electric service, telecommunications, water and sewer systems would be short-term and temporary in nature for all project components and Alternatives being considered for the proposed revisions to the ARCF 2016 Project. Whether or not a line is relocated, or protected in place, the impact to the human environment is the interruption in service. Since these interruptions would be temporary in nature, cumulative impacts are unlikely. This project would not be associated with a permanent increase in use of public utilities or services; therefore,

cumulative effects would be limited to effects to communities where numerous construction projects occur within the same general time period.

A review of reasonably foreseeable future actions which could affect public utilities and service systems in the same communities includes the Sacramento River Bank Protection Project, the I Street Bridge replacement, the Folsom Dam raise Project, the U.S. Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project, the City of Sacramento Water+ Treatment Plants Resiliency and Improvements Project, and the Interstate 80 Corridor Improvement Project. Construction of these projects could result in service interruptions to communities surrounding the project area. Many of these projects could be completed during a similar time frame and it is possible for some communities to be subjected to numerous service interruptions. However, the amount of work able to be accomplished at one time would be limited by the labor and materials markets. Further, since all projects would endeavor to keep service interruptions to the shortest time frame achievable, it is unlikely that even taken together, they could rise to the level of a significant cumulative effect, provided all projects incorporate needed mitigation measures, such as coordinating with affected utility owners and provides, to reduce their impacts to the extent achievable. Therefore, there would not be a cumulatively considerable incremental contribution to a significant cumulative impact to public utilities and services.

#### **5.2.4 Land Use and Prime and Unique Farmlands**

The Proposed Action would not divide established communities or conflict with land use policies enacted to reduce or avoid environmental effects because the levee systems and canals are already in place and the proposed alterations would not create new barriers for established communities. Additionally, proposed improvements have been designed to comply with local land use policies and implementing construction actions such as saving onsite vegetation where feasible would reduce impacts. Additionally, mitigation measures are included to avoid, and where needed compensate, for unavoidable impacts. The Proposed Action would not significantly affect Important Farmland, and effects on forest land would be short-term because mitigation measures would require construction of additional riparian forest habitat to replace habitat lost because of implementing the project. There would be no significant cumulative impact on division of established communities or land use conflict from the related projects because they would be constructed on the existing flood protection system outside of established communities and would not result in the need for land use changes. Implementing Alternative 5b would result in the conversion of 227 acres of Important Farmland to nonagricultural use. If this Alternative is implemented, it would make a considerable contribution to a significant cumulative impact on the loss of agricultural land in Yolo County.

#### **5.2.5 Social-Impacts to At-Risk Communities**

Construction of the Proposed Action could result in temporary effects to surrounding at-risk communities, particularly by disrupting transportation to schools near the Magpie Creek, by potentially displacing unhoused individuals residing on the American River and Magpie Creek, and by contributing to burdens experienced by at-risk communities in the project area, including exposure to airborne PM2.5 and traffic proximity and volume. It is possible that other flood risk management projects occurring in the same general area, such as additional components of the ARCF 2016 Project, Sacramento River Bank Protection Project, the West Sacramento General

Reevaluation Report project, ARCF Natomas Basin Project, and restoration projects associated with the Folsom Dam Raise, could be simultaneously constructed with elements described in the Proposed Action, which could exacerbate adverse effects. However, coordination with organizations representing at-risk communities in the area (e.g., school district(s) and advocacy groups) and the development of traffic control plans would allow for consideration of all potential impacts from nearby projects and ensure that effects are minimized. In this way, the Proposed Action would not create significant adverse effects.

In conjunction with the other flood risk management projects in the greater Sacramento area, the authorized project would contribute to cumulatively beneficial impacts to communities within and surrounding the project area by reducing the risk of flooding that could result in catastrophic loss of lives and irreparable damage to homes and businesses.

### **5.2.6 Socioeconomic Conditions**

The 2016 ARCF GRR FEIS/EIR did not analyze cumulative impacts to socioeconomic conditions directly. The purpose of the authorized project would provide higher beneficial impacts, rather than negative outcomes, to the City and County of Sacramento. The Proposed Action would reduce the risk of flooding that could result in the catastrophic loss of lives, irreparable damage to homes and business, and would have compounding socioeconomic impacts.

The implementation of multiple flood risk reduction projects in the greater Sacramento area would result in minor socioeconomic impacts due to business entrances temporarily being rerouted and the potential for relocation of a few residences and businesses. These projects would include the Sacramento River Bank Protection Project, the Natomas Basin Project, the West Sacramento Project Yolo Bypass East Levee, and restoration projects associated with the Folsom Dam Raise could be simultaneously constructed. Thorough consideration of project alternatives and ongoing adaptive engineering design to human and natural constraints would prevent the need to remove housing or require substantial displacement and relocation of residents.

There would be increased likelihood with simultaneous construction to displace groups of the unhoused population that camp along the American and Sacramento Rivers. Widespread construction would reduce available sites for people to migrate to. As a part of ongoing levee maintenance, the local maintaining agency does require relocation of encampment of unhoused people on and within 25 feet of the levee. While construction could cause more frequent disruptions of these encampments, it would be within the authority of the project and be required for the safety of people, that no member of the public would be permitted to reside within the construction limits. Encampments within 25 feet of critical safety infrastructure (including levees) are subject to relocation under existing City and County codes and ordinances even in the absence of active construction. Therefore, the impacts to the unhoused population of the greater Sacramento area would be less than significant and no mitigation would be required.

While the purpose of the ARCF 2016 Project and other Federal actions, such as Sacramento River Bank Protection Project, is to provide flood risk reduction to communities, the levee improvements do not substantially protect new additions in the existing floodplains.

Cumulatively, the projects do not induce development in the floodplain. Short-term construction related economic growth would occur, however, it is expected that the large available workforce within the Sacramento region would provide most of the construction workers needed. Generally, no new housing would be needed as these workers would be expected to already live locally and commute daily to the project sites.

Projects in the Delta, including the SRMS, Decker Island Tidal Habitat Restoration Project, Rio Vista Estuarine Research Station, North Delta Fish Conservation Bank, Prospect and Winter Island Tidal Habitat Restoration Project, would result in temporary economic growth as goods and services would be needed in the small towns of Rio Vista and Isleton. Projects in this area are geared towards habitat restoration and mitigation; therefore, no new housing or development would be constructed as part of the Proposed Action. The Proposed Action and related projects would not result in a cumulatively significant impact to socioeconomic conditions.

### **5.2.7 Aesthetics/Visual Resources**

Any levee work requiring vegetation clearing that occurs prior to the establishment of mitigation vegetation associated with the Proposed Action would cause significant cumulative visual impacts to scenic vistas, scenic resources, and visual character and quality, to both the American and Sacramento Rivers. Both rivers have high visual character and viewer sensitivity. Since removed vegetation takes years to grow back, any project removing vegetation would add to the visual degradation of the area until vegetation grows. Projects within the ARCF 2016 Projects outlined in the No Action Alternative, Sacramento River Bank Protection Project and West Sacramento General Reevaluation Report would likely cause a short-term significant cumulative impact on the natural views along the Sacramento and American Rivers if work starts within 3-5 years of the Proposed Action. Since some portions of the Sacramento River Erosion Contract 3 do not include planting benches, if other projects along the Sacramento River are not replanting as well, there would likely be a long-term significant cumulative impact on the natural views given that the area would look barren and lacking in vegetation. Because the Proposed Action would cause visual impacts along long stretches of the American River and Sacramento River, the Proposed Action would make a cumulatively considerable incremental contribution to a significant cumulative impact.

Projects within the Delta near the SRMS could similarly have a cumulative impact on the natural look of the area if projects are close in timeline. Specifically, the SRMS, the Decker Island Tidal Habitat Restoration Project, Rio Vista Estuarine Research Station, North Delta Fish Conservation Bank, Prospect Island Tidal Habitat Restoration Project, and Winter Island Tidal Habitat Restoration Project could cumulatively impact the natural views of the area if work on multiple projects is performed closely in time such that vegetation does not have sufficient time to establish or takes longer to re-establish than anticipated. Because the SRMS could be contributing to the disturbance of natural views along the Sacramento River, the Proposed Action would make a cumulatively considerable incremental contribution to a significant cumulative impact on visual resources. No feasible mitigation measures are available to avoid or reduce this considerable contribution such that it is a significant and unavoidable cumulative impact.

## 5.2.8 Geologic Resources

Construction activities associated with most of the Proposed Action would involve extensive grading and earthmoving activities, thereby exposing soil to erosion from wind in summer and from rainfall during storm events. If uncontrolled, suspended sediment from stormwater runoff could enter adjacent water bodies and result in increased turbidity. The Proposed Action and related projects would disturb more than 1 acre of land and therefore are required by law to comply with NPDES discharge permits from the Central Valley RWQCB, which require preparation of a SWPPP and implementation of the SWPPP's erosion control BMPs. Therefore, there would be no significant cumulative effect related to construction-related erosion and the Proposed Action would not make a cumulatively considerable incremental contribution to a significant cumulative effect related to geological resources.

If not addressed, erosion-related levee failures could contribute significant volumes of sediment and material to the stream channels which could alter flow patterns and potentially destabilize other levees outside the project sites. However, the Proposed Action and related projects would implement erosion control and levee improvement measures that would reduce the risk of levee failure. Therefore, the Proposed Action would not cumulatively increase the risk of levee failure but would reduce flood risk and related substantial erosion. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative impacts related to erosion.

The Proposed Action and most of the related projects would entail earthmoving activities in the Riverbank and/or Modesto Formations, which are considered to have high paleontologically potential (SVP 2010: 1). While some of the related projects, such as the CVFPP, NLIP, and the Delta Shores projects contain mitigation measures to protect paleontological resources, the other related projects may not. Therefore, some of the related projects may result in significant effects to unique paleontological resources. However, the presence of unique paleontological resources is site-specific, and a low potential exists that any project, including the Proposed Action, would encounter unique, scientifically important fossils, and the cumulative impact would be less than significant.

## 5.2.9 Hydraulics and Hydrology

The ARCF GRR FEIS/FEIR stated that the past, present, and reasonably foreseeable actions at that time would not contribute to cumulative effects to hydrology and hydraulics. Most of the surrounding levee projects include levee raises, subsurface improvements, bank protection, flood walls, and other improvements to the existing levee system to meet flood design standards and are designed to not adversely affect hydrology or hydraulics. The Proposed Action requires additional in-water rock placement for launchable rock toe construction. On the Sacramento River, this action in combination with the Sacramento River Bank Protection Project and West Sacramento General Reevaluation Report projects, would result in additional material and plantings below the Sacramento River OHWM. However, the cumulative impacts on water surface elevation (WSE) from these projects will be addressed by the Sacramento Weir expansion that is currently under construction and will decrease flood flows entering the Sacramento River portion of the ARCF 2016 Project. On the American River, the Proposed Action also includes additional in-water rock placement. This additional rock and the in-water

plantings, combined with the annual gravel placement of the Lower American River Anadromous Fish Habitat Restoration Project could result in a stage increase. The Lower American River Anadromous Fish Habitat Restoration Project would involve placing gravel upstream of the Proposed Action. The addition of gravel was modeled to not affect the streambed elevation downstream of RM 12 (City of Sacramento and BOR 2019). The model run (Pasternack et al. 2004) for the Lower American River Anadromous Fish Habitat Restoration Project determined that adding 30,000 tons per year would not affect the capacity of the LAR channel due to a sediment trap between RM 10.5 and 13.5. (City of Sacramento and BOR 2019). Because the USACE projects will be assessed for stage increase and because the Lower American River Anadromous Fish Habitat Restoration Project model showed that the project was not anticipated to impact the streambed elevation below RM 12, there will not be a significant cumulative impact on hydrology.

### **5.2.10 Water Quality**

When considered cumulatively, water quality impacts from the various past, present, and future projects could affect the project area and areas upstream and downstream. Projects which involve temporary construction-related activities similar to those considered under the Proposed Action, such as work adjacent to surface waters or placement of in-water materials have the potential to temporarily degrade water quality through introduction of sediment, contaminants bound to that sediment, or through the spillage of gas, oil, or lubricants used for the maintenance of construction equipment. These impacts are temporary in nature, but when multiple projects are occurring at once, could result in incrementally significant cumulative effects. Past, present, and future projects which involve vegetation removal would contribute to long-term or permanent cumulatively significant effects to water temperature.

On the Sacramento River, the Sacramento River Bank Protection Project would repair levees for erosion protection, while the West Sacramento GRR Project would address seepage, stability, height, and erosion concerns beginning in 2024. Both projects include repairs within the same geographic area and have the potential to be constructed at the same time and would require removal of vegetation along the Sacramento River. Construction of the I Street Bridge Replacement is planned between 2024-2027 and would likely coincide with construction of the Proposed Action. Additionally, the City of Sacramento conducts annual maintenance dredging at Miller Park, upstream of Sacramento River Erosion Contract 3. All these projects would require mitigation measures for construction-related sediment inputs into the river; however, even with these measures the simultaneous construction could contribute to cumulatively considerable incremental contribution to sedimentation and turbidity increases in the river. These effects would be temporary for the duration of construction. Vegetation removal as part of these projects, in combination with the vegetation removal that is planned for other erosion contracts from the ARCF 2016 Project, could contribute to long-term cumulatively considerable incremental contribution to significant impacts from temperature increases and nonattainment of beneficial uses along the Sacramento River.

On the American River, the Lower American River Anadromous Fish Habitat Restoration project is located just upstream of American River C3B and involves placing a maximum of 30,000 tons of gravel yearly into the river for the replenishment of spawning habitat. This would coincide with construction of the Proposed Action with potential cumulatively significant

turbidity effects, even with mitigation measures in place for construction. Cumulative water quality impacts and the Proposed Action's contributions would be significant and unavoidable.

### **5.2.11 Air Quality**

Air quality is inherently a cumulative effect because existing air quality is a result of past and present projects. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards (SMAQMD 2014). However, a single project can exceed local air district emissions and contribute towards nonattainment or keep an area from achieving attainment. Several other construction projects are expected to occur simultaneously in the SVAB during the planned construction period for the Proposed Action. The related projects have the potential to generate construction-related emissions that individually exceed SMAQMD's threshold of significance. However, all construction projects in the SMAQMD, including the Proposed Action, are required to offset emissions that have the potential to negatively affect air quality in the SVAB through implementation of SMAQMD emissions reductions practices such as watering exposed surfaces, limiting vehicle speed, minimizing idling time, etc. The full list of SMAQMD emission reduction practices is included in Mitigation Measure AIR-1. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit). Furthermore, the proposed project is part of the larger ARCF 2016 Project, which has been determined to meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NO<sub>x</sub> emissions. Although the ARCF 2016 Project as a whole will exceed General Conformity *de minimis* thresholds for the Sacramento Federal Nonattainment Area in 2024, 2025, and 2026, the impact will be reduced to a less-than-significant level after implementing Mitigation Measures AIR-1 through AIR-5 because emissions in years where the *de minimis* thresholds would otherwise be exceeded would be offset to zero. Individual ARCF 2016 Project components, including those that are part of the No Action Alternative for this SEIS/SEIR, could be delayed or be constructed during different years than planned. Annual payments of fees and offsets to air districts would be made to reflect actual contracted work for a given year and additional offsets might need to be purchased to in some years to offset the additional NO<sub>x</sub> emissions. Construction of the Proposed Action will not result in significant impacts individually to air quality and would not exceed Federal General Conformity *de minimis* thresholds after mitigation in either air basin. Therefore, the Proposed Action with refinements would not cause a cumulatively considerable incremental contribution to significant cumulative effects related to air quality.

### **5.2.12 Greenhouse Gas Emissions and Energy Consumption**

Though significance thresholds can be developed by air districts and State and Federal regulatory agencies, these thresholds and their related goals are intended to address GHG emissions at a cumulative and even a global level. The Proposed Action and the related projects that would generate GHG emissions in excess of CEQA threshold levels would implement the mitigation measures and adopted to reduce emissions and/or purchase carbon offsets. Individual ARCF 2016 Project components, including those that are part of the No Action Alternative for this SEIS/SEIR could be delayed or be constructed during different years than planned. Some years there could be higher GHG emissions that what has been discussed in the SEIS/SEIR, these additional emissions would still be mitigated through measures to reduce emissions and/or purchase of carbon offsets. The proposed project and the related projects would result in the

generation of GHGs, in proportion to the size of each individual project, amount and time of operation of and distances traveled by construction equipment. The highest estimated year of GHG emission to construct the refined project would occur in 2025. Estimated at 13,842.92 MT CO<sub>2</sub>e, this would equate to a 0.0034% increase in overall GHG emissions when comparing to 2021 GHG inventory total in Sacramento County of 4,026,910 MT CO<sub>2</sub>e (Sacramento County 2023). Even with any cumulative impacts from the discussed local, state or Federal projects, the proposed project would be consistent with Statewide adaptation strategies. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to climate.

### **5.2.13 Noise and Vibration**

A cumulative effect might occur if construction activities associated with any of the related project(s) were to occur within 600 feet of daytime construction activities associated with the proposed project except for the SRMS, and within 1,200 feet during nighttime construction associated with MCP and the ARMS. Additionally, if the construction activities of other projects were to occur at the same time or overlap at some point during the construction activities of the Proposed Action, this could result in a cumulatively considerable impact. Any of the related projects could require construction that exceeds the applicable local City or County noise ordinances or General Plans; however, the proposed project will limit noise-generating activities to the extent possible, to the hours when the City of Sacramento exempts construction noise. Nighttime construction activities would only occur as necessary to prevent a safety concern. Therefore, the proposed project is unlikely to result in a cumulatively considerable incremental contribution to a significant cumulative effect related to construction equipment or traffic noise levels in excess of standards established in the local general plan or noise ordinance or in other applicable local, State, or Federal standards.

### **5.2.14 Hazards and Hazardous Materials**

The Proposed Action would include use of small quantities of fuels, oils, and lubricants for operation of construction equipment. The construction contractors would be required to comply with all Federal, State, and local regulations for the storage, transport, use, and disposal of hazardous materials, as detailed in Mitigation Measure GEO-1. This includes preparation of a SWPPP, which details the methods to prevent releases into the environment and BMPs that detail storage requirements and measures for spill prevention and response. None of the sites considered under the Proposed Action are on existing lists of hazardous materials sites; and transport and disposal of contaminated materials is not anticipated. Therefore, any adverse hazards or hazardous materials effects would be localized to the areas under construction and would not result in a considerable incremental contribution to a significant cumulative effect when combined with other projects occurring in the same region. Construction of the Proposed Action could result in exposure to unknown hazardous materials sites not previously identified in database searches. If this occurs, the mitigation measures described in Section 4.3.8 Hazards and Hazardous Materials would minimize the potential exposure of humans and the environment and reduce likelihood of a considerable incremental contribution to significant cumulative effect related to hazardous materials.

## 5.2.15 Vegetation and Wildlife

Project implementation has the potential to contribute to the loss or degradation of sensitive habitats, riparian habitats, waters of the United States, waters of the State, and forestland. Similar anticipated adverse effects on habitats are associated with the flood-risk reduction and development projects, including the Natomas Basin Project, the Sacramento River Bank Protection Project, the Lower Elkhorn Basin Levee Setback Project, the West Sacramento GRR Project, the I Street Bridge Replacement Project, the Folsom Dam Raise, and other ARCF 2016 Projects; and the removal of vegetation that could pose a risk to levee integrity by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to contribute to the loss or degradation of sensitive habitats and forestland.

These effects, along with the historical decline of vegetation due to urbanization, would result in significant cumulative effects. Additionally, other local projects complying with the Corps' vegetation policy, that do not receive vegetation variance, could result in the removal of vegetation along waterways. Implementation of Mitigation Measures described in Section 4.4.1, *Vegetation and Wildlife*, would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal Endangered Species Act and California Fish and Game Code (including the California Endangered Species Act) and other regulatory programs that protect habitats, such as Clean Water Act (CWA) Sections 401 and 404. The mitigation measures would be implemented in accordance with the recommendations of the Coordination Act Report; however, potential adverse effects on biological resources would remain significant due to the amount of habitat being removed to construct the project and the time lapse before the new plantings would mature to the level of those removed. Once all the mitigation and compensation plantings have matured to the level of those removed, the effects to biological resources would be less than significant because the new habitat would be similar to those removed over the 50-year life of the project.

## 5.2.16 Aquatic Resources and Fisheries

Potential cumulative effects on fish would include effects associated with other projects proposed to occur on the Sacramento and American Rivers. While short-term cumulative effects would be significant from the direct effects associated with construction, the implementation of these projects would in time result in a net benefit to fish from the construction of setback levees, planting berms, and other aquatic-based restoration programs being implemented as part of multi-benefit projects. The ARCF 2016 Project along with many other projects being considered for the region (Sacramento River Bank Protection Project, West Sacramento GRR, I Street Bridge Replacement Project, other phases of the ARCF 2016 Project, and the removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region) could result in Shaded Riverine Aquatic (SRA) impacts and limited opportunities for future SRA habitat mitigation. However, there are currently sufficient SRA habitat mitigation sites and planting areas to mitigate the impacts of known reasonably foreseeable projects in the region. Therefore, the ARCF 2016 Project would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects to fish, benthic macroinvertebrates and aquatic habitats.

With the implementation of USACE's proposed mitigation and compensation efforts for both the West Sacramento and ARCF 2016 Project, including the Proposed Action, significant

cumulative effects on delta smelt, salmonids and green sturgeon would be minimized, and replacement habitat compensation would be created for the remaining unavoidable impacts. Therefore, the ARCF 2016 Project would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on delta smelt, salmonids and green sturgeon.

### **5.2.17 Special Status Species**

Project implementation has the potential to adversely affect special status species. Similar potential for adverse effects on special status species and their habitats would be associated with the flood-risk reduction projects, including future ARCF 2016 Project contracts proposed along the American River and Sacramento River, and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to adversely affect special status species. Most potential adverse effects of the Proposed Action and nearby levee projects relate to plants, fish, and wildlife and would be associated with construction disturbances of special status species and their habitats, but permanent loss of habitat would also result from some of the individual levee improvement projects and the development projects. These adverse effects could contribute to species declines and losses of habitat that have led to the need to protect these species under the Federal Endangered Species Act and the California Fish and Game Code (including the California Endangered Species Act). Implementation of Mitigation Measures described in Section 4.4.3, Special Status Species, would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal and California Endangered Species Acts, and other sections of the California Fish and Game Code. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on special status species.

### **5.2.18 Cultural Resources**

Project implementation has the potential to impact and adversely affect significant cultural resources. These impacts would result, primarily, from the disturbance of previously unknown archaeological resources during construction activities, with potential regional impact implications if the resources are part of a historic district, landscape, or traditional cultural property of significance to a Native American Tribe or Tribes. For the purposes of this SEIS/SEIR, the term “Native American Tribes” means both federally recognized Indian Tribes/Tribal Nations, as defined under Federal law and USACE policy, and non-federally recognized tribes.

Adverse effects on cultural resources have already, or could occur, on similar flood-risk reduction and development projects, including the Natomas Basin Project, the Sacramento River Bank Protection Project, the Lower Elkhorn Basin Levee Setback Project, the West Sacramento GRR Project, the I Street Bridge Replacement Project, Folsom Dam Raise, and other ARCF 2016 projects. Similar impacts also have, or could occur, during vegetation removal by levee maintaining agencies in and around the Sacramento area.

The continued disturbance or destruction of archaeological materials, Native American ancestral burials, and other types of cultural resources on multiple projects will likely lead to the loss or degradation of information important for understanding, appreciating, and respecting past

lifeways and cultures. At present, as described in Section 4.5.1, there are multiple local and regional construction projects involving ground disturbance, all of which could potentially impact known and currently unknown cultural resources. Given the extent of flood risk reduction, ecosystem restoration, infrastructure, and other construction projects in Sacramento and the surrounding area, cumulative impacts to nonrenewable cultural resources are likely.

Project improvements analyzed in this SEIS/SEIR, and other state and Federal projects, would implement mitigation measures to address the effects caused by proposed actions. ARCF 2016 Projects are mitigating significant impacts to cultural resources as stipulated in the existing Section 106 PA; however, the mitigation of all adverse effects across multiple projects to the extent that cumulative impacts are completely avoided is unlikely. Considering the nature of finite cultural resources that may be lost or damaged by the implementation of these projects, while mitigation would help to minimize these impacts, some degree of significant cumulative impacts to cultural resources from multiple projects is likely.

### **5.3 Growth-Inducing Effects**

Because the Proposed Action would not involve construction of housing, the Proposed Action with refinements would not directly induce growth. Project-related construction activities would generate temporary and short-term employment, but these construction jobs are anticipated to be filled from the existing local employment pool and will not indirectly result in a population increase or induce growth by creating permanent new jobs. Furthermore, the Proposed Action will not involve constructing businesses or extending roadways or other infrastructure that could indirectly induce population growth. Consequently, the Proposed Action will not induce growth leading to changes in land use patterns, population densities, or related impacts on environmental resources.

Levee improvements will benefit areas identified for future growth anticipated in the City and County of Sacramento. Local land use decisions are within the jurisdiction of the City or County of Sacramento, which have each adopted a general plan consistent with State law.

The flood risk reduction improvements would increase the levees resistance to erosion, provide better overall levee stability and reliability, and provide additional flood risk reduction for growth anticipated in the City of Sacramento and Sacramento County General Plans. The Proposed Action would not allow additional growth to occur other than what has already been planned, nor would it change the locations where this growth is planned to occur. Consequently, implementation of the Proposed Action would not affect current and/or projected population growth patterns within the City or County of Sacramento and, therefore, would not be growth-inducing. The Proposed Action with Design Refinements would mitigate flood risks by improving levees to meet engineering standards associated with the National Flood Insurance Program; it would not alter protection for the 100-year event, nor does it transfer any such risk to other areas. The Proposed Action with refinements would not directly or indirectly support development in the floodplain.

# Chapter 6. Compliance with Federal and State Laws and Regulations

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This chapter summarizes the environmental laws and regulations that apply to the ARCF 2016 Project and describes the status of compliance with those laws and regulations.

## 6.1 Federal Laws, Regulations and Policies

### 6.1.1 Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d)

The Bald and Golden Eagle Protection Act (BGEPA) provides for the protection of bald and golden eagles by prohibiting, except under certain specified conditions, the take, possession, and commerce of eagles, including their parts (feathers), nests or eggs. The USFWS adopted new amendments to policies regarding implications of the Bald and Golden Eagle Protection Act; however, these changes do not substantially change the application of NEPA to the proposed plan (USFWS 2019). Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure the Proposed Action is compliant.

### 6.1.2 Clean Air Act of 1972, as amended (42 U.S.C. 7401, et seq.)

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to establish national ambient air quality standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, and lead. The primary standards protect the public and the secondary standards protect public welfare. The CAA authorized the establishment of NAAQS and set deadlines for their attainment.

State and local agencies, within areas that exceed the NAAQS, are required to develop state implementation plans (SIP) to show how they will achieve the NAAQS for nonattainment criteria pollutants by specific dates. SIPs are not single documents; rather, they are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations and Federal controls. USEPA is responsible for enforcing the NAAQS primarily through reviewing SIPs that are prepared by each state. As required by the Federal CAA, the USEPA has established and continues to update the NAAQS.

Pursuant to CAA Section 176(c) requirements, USEPA promulgated the General Conformity Rule, which applies to most Federal actions, including the ARCF 2016 Project. The General Conformity regulations at Title 40 Code of Federal Regulations (CFR) Subchapter C Part 93 ensure that the actions taken by Federal agencies do not interfere with a state's plans to attain

and maintain national standards for air quality. A General Conformity Determination was completed for ARCF 2016 project in March 2021.

An analysis of air quality effects of the Proposed Action is presented in Section 4.3.5, Air Quality. NOx emissions for ARCF 2016 project, exceeded the EPA's General Conformity *de minimis* thresholds during several of the ARCF 2016 project's construction years, including 2022 and 2023. USACE purchased offsets for NOx emissions from SMAQMD and YSAQMD for 2022 and 2023. Due to changes to the schedule and push in construction a new General Conformity Analysis will be done for years 2024 through 2026. Once the analysis is complete the Proposed Action will be in compliance with all Federal air quality standards.

GHG emission management is regulated by Federal, State, and local levels of government. State and local standards are set by CARB and adjusted by local management districts to better service their counties. The ARCF 2016 Project is currently estimated to exceed the CEQA reporting limits for GHGs based on local and state thresholds and will coordinate with the local districts to mitigate those impacts. CEQ issued a final rule which restores the requirement that Federal agencies evaluate all the relevant environmental impacts of the decisions they are making, including those associated with changing conditions (Whitehouse 2022). To make comparisons for GHGs released by different projects, various GHGs such as carbon dioxide, methane, and oxides of nitrogen are combined into carbon dioxide equivalents (CO<sub>2</sub>eq), by using the global warming potential of each gas as it relates to carbon dioxide, as found in CFR Title 40 Chapter I Subchapter C Part 98 Table A-1 "Global Warming Potentials". Analysis for CO<sub>2</sub>eq emissions for ARCF show that compared to the involved counties yearly GHG emissions there is no significant adverse effects on global variable long-term weather conditions. As a result, the project is compliant with the CAA.

### **6.1.3 Clean Water Act of 1972, as amended (33 U.S.C. 1251, et seq.)**

The Clean Water Act (CWA) is the primary Federal law governing water pollution. It established the basic structure for regulating discharges of pollutants into Waters of the U.S. (WOTUS) and gives the USEPA the authority to implement pollution control programs. In California, the USEPA has delegated authority to regulate the CWA to state agencies such as the CVRWQCB and State Water Resources Control Board (SWRCB). Section 401 of the CWA regulates the water quality for any activity that may result in any in-water work or discharge into navigable waters. These actions must not violate Federal water quality standards. The CVRWQCB administers Section 401 of the CWA in California, and either issues or denies water quality certifications. Water quality certifications typically include project-specific requirements to ensure attainment of water quality standards. USACE obtained a Programmatic CWA 401 water quality certification (WQC) (Order No. 5A34CR00819) on July 13, 2021, for the ARCF 2016 Project. Each individual project will request coverage under this overall permit and this permit will expire July 12, 2026. Four 401 permits, under the programmatic CWA 401 WQC have been received, two of which have been closed out in accordance with regulatory requirements. For contracts occurring in FY 2027, and 2028 The CWA 401 WQC will be either extended or a new permit will be requested.

Section 404 of the CWA requires that a permit be obtained from USACE when an action will result in the discharge of dredged or fill material into wetlands and WOTUS. The 404(b)(1) guidelines specify that “no discharge of dredged or fill material shall be permitted if there were a practical alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences” (40 C.F.R. § 230.10[a]). When conducting its own civil works projects, USACE does not issue permits to itself. Rather, USACE complies with the guidelines and substantive requirements of the CWA, including Section 404 and Section 401. The Proposed Action would require discharge of fill material into WOTUS; therefore, a Section 404(b)(1) analysis has been completed and is included with Appendix K of this Final SEIS/SEIR. The discharge of fill material would comply with the 404(b)(1) guidelines with the inclusion of appropriate measures to minimize pollution or adverse effects on the aquatic ecosystem. The 404(b)(1) analysis would identify the Least Environmentally Damaging Practicable Alternative (LEDPA).

The project would also require a National Pollution Discharge Elimination System (NPDES) permit since it would disturb more than one acre of land and involve possible storm water discharges to surface waters. Prior to construction, the contractor would prepare a Storm Water Pollution Prevention Plan (SWPPP) and then submit a Notice of Intent form to the CVRWQCB, requesting approval of the proposed work. This storm water plan would identify best management practices to be used to avoid or minimize any adverse effects of construction on surface waters. Once the work is completed, the contractor would submit a Notice of Termination to terminate coverage by the NPDES permit. Therefore, the Proposed Action would comply with this law.

#### **6.1.4 Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 116)**

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act, imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment if such materials are accidentally released. The Proposed Action would comply with EPCRA during any fieldwork that may encounter or use hazardous materials, such as, but not limited to, geotechnical soil sampling, groundwater well installation and active construction. These activities would be monitored and regulated by qualified quality control and assurance specialists.

#### **6.1.5 Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)**

Pursuant to the Endangered Species Act (ESA), USFWS and NMFS have regulatory authority over Federally listed species. Under the ESA, a permit to “take” a listed species is required for any Federal action that may harm an individual of that species. Section 7 of the ESA prohibits Federal agencies from authorizing, funding, or carrying out activities that are likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. By consulting with USFWS and NMFS before initiating projects, agencies review their actions to determine if those actions could adversely affect listed species or their habitat. Through

consultation, USFWS and NMFS work with Federal agencies to help design their programs and projects to conserve listed and proposed species. USFWS and NMFS coordination with Federal action agencies is critical to species conservation and may prevent the need to list candidate species, by reducing potential impacts to listed species during Federal activities.

The USFWS is the administering agency for the ESA regarding non-marine species and NMFS is the administering agency for marine fish species. A list of threatened and endangered species that may be affected by the Proposed Action was obtained from USFWS in 2023 (please refer to Appendix D).

The following is a brief consultation history:

- USACE formally consulted with USFWS on the ARCF 2016 Project and received a Biological Opinion (BO) on September 11, 2015 (08ESMF00-2014-F-0518).
- USACE completed a reinitiation for this BO with USFWS March 2021 (08ESMF00-2014-F-0518-R003).
- USACE formally consulted with NMFS on the ARCF 2016 Project and received a Biological Opinion on September 9, 2015 (WCR-2014-1377).
- USACE completed a reinitiation for this BO with NMFS in May 2021 (WCRO-2020-03082).
- USACE completed a reinitiation for both the USFWS and NMFS BOs in 2024 and received the USFWS BO (2022-0003130-R004, dated March 21, 2025) and the NMFS BO (#WCRO-2024-01347, dated March 13, 2025).

Based upon these consultations, the Proposed Action is likely to adversely affect the yellow-billed cuckoo (*Coccyzus americanus*), giant garter snake (*Thamnophis gigas*), delta smelt (*Hypomesus transpacificus*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*).

USACE would reinitiate formal consultation if the Design Refinements resulted in a new adverse effect to a species, not previously consulted on, therefore, requiring new mitigation. The ARMS and SRMS are currently being consulted on for adverse impacts to listed species. USACE continues to update USFWS and NMFS on impacts and mitigation for covered species associated with implementing ARCF 2016 Project actions. The Proposed Action is in compliance with ESA upon receipt of the BO's and anticipated implementation of the terms and conditions.

On June 4, 2021, the USFWS and NMFS announced a plan to improve and strengthen the Endangered Species Act (ESA) with a set of proposed actions that follow Executive Order 13990 (Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis). On June 22, 2023, three proposed rules were announced to revise regulations for interagency cooperation, revise regulations for listing species and designating critical habitat, and reinstate a protection option for species listed as threatened under ESA. These ESA policy changes would not affect the application of the ESA to the Proposed Action.

### **6.1.6 Energy Independence and Security Act of 2007 (Public Law No.110-140)**

The Energy Independence and Security Act of 2007 (EISA) is designed to improve vehicle fuel economy, help reduce U.S. dependence on oil and improve the energy performance of the Federal government. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global changing conditions. EISA increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the Corporate Average Fuel Economy (CAFE) standards, the EISA builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century; however, on April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, U.S. Department of Transportation (DOT) and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks through retaining the current model year 2020 standards through model year 2026 and establish new standards covering model years 2021 through 2026 (NHTSA 2019).

The CAA grants California the ability to enact and enforce stricter fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the State applies to EPA for a preemption waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to establish a nation-wide standard (84 FR 51310). At the time of preparing this environmental document, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors. The Proposed Action would comply with this law in accordance with both State and Federal air quality standards.

### **6.1.7 Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards (Public Law No. 94-163)**

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic Safety Administration (NHTSA), part of the DOT, is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The 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. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information

generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described above), the CAFE standards were revised for the first time in 30 years then later updated in 2012 and 2019. The Proposed Action would comply with this law by using vehicles that meet CAFE program fuel standards.

### **6.1.8 Energy Policy Act of 1992 and 2005**

The Energy Policy Act of 1992 (EPAct) was enacted to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain Federal, State, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy. The Proposed Action would comply with this law by using alternative fuel vehicles if available for Federal employees and contractors.

### **6.1.9 Executive Order 11988: Floodplain Management**

The objective of Executive Order (EO) 11988 is the avoidance of long- and short-term adverse effects associated with the occupancy and modification of the base flood plain (1 percent annual event) and the avoidance of direct and indirect support of development in the flood plain wherever there is a practicable alternative. The Proposed Action is consistent with EO 11988 since there is no other practicable alternative to levee improvements, which are the first line of defense for reducing the risk of flooding in established urban areas. Most of the levee improvements occur on the boundary of the existing built environment, such as on the Sacramento River and Lower American River.

The Proposed Action would accommodate growth in the project footprint consistent with local and regional management plans; therefore, the Proposed Action is compliant with the objectives of EO 11988. Specifically, in the MCP segment, economic growth is anticipated in the both the Future without Project (FWOP) condition and under the Proposed Action, due to City and County development plans. The goals of the Proposed Action are to reduce flood risk in urbanized areas to protect human safety, health and welfare.

### **6.1.10 Executive Order 11990: Protection of Wetlands**

EO 11990, issued on May 24, 1977, was implemented to prevent the long- and short-term adverse impacts associated with the destruction or modification of wetlands, and avoid direct or indirect support of new construction in wetlands wherever a practicable alternative existed, for any Federally undertaken, financed, or assisted project. To fully support the goals of NEPA, this EO additionally required the preservation and enhancement of the natural and beneficial values of wetlands.

Reasonable effort during project design to avoid construction in existing wetlands has been taken. Any indirect degradation, direct loss or destruction would be compensated through the creation of new wetland habitat or through the purchase of mitigation credits, depending upon project component.

### **6.1.11 Executive Order 13112: Invasive Species Regulation**

EO 13112, signed February 3, 1989, directs Federal agencies to take actions to prevent the introduction of invasive species, provide for control of invasive species, and minimize the economic, ecological, and human health impacts that invasive species cause. This order established the National Invasive Species Council composed of Federal agencies and departments. The Council recommends objectives and measures to implement this EO and to prevent the introduction and spread of invasive species. This EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential effects, and measures to prevent or eradicate them. Additionally, EO 13112 also calls for the restoration of native plants and tree species. The Proposed Action complies with EO 13112 by discussing invasive species and measures to prevent their spread during construction in Appendix B Section 4.1 Vegetation and Wildlife.

### **6.1.12 Executive Order: 14148 Initial Recission of Harmful Executive Orders and Action**

Signed on January 20, 2025, EO 14148 (90 FR 8237) is the first step to “repair our institutions and our economy” to “commence the policies that will make our Nation united, fair, safe, and prosperous again”. This Final SEIS/SEIR has been modified by removing references to revoked orders and actions.

### **6.1.13 Executive Order 14154: Unleashing American Energy**

Signed on January 20, 2025, EO 14154, to summarize, under Sec. 4 revoked additional orders and actions beyond EO 14148, and under Sec. 5 rescinded CEQ’s NEPA regulations 40 C.F.R. part 1500-1508, and under Sec. 6 prioritized accuracy in environmental analyses. Modifications to this Final SEIS/SEIR include removal of revoked orders and actions, follow CEQ’s February 25, 2025, Interim Final Rule (90 FR 10610) and CEQ’s February 19, 2025, Memorandum: Implementation of the National Environmental Policy Act, and any NEPA relevant sections of this EO. The preparation of this SEIS began, and the draft SEIS was circulated for public review prior to the regulations being rescinded. As such, this final SEIS/SEIR has followed the 2022 NEPA regulations that were previously in effect.

### **6.1.14 Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 4201-4209)**

The Farmland Protection Policy Act (FPPA) was passed by Congress in 1981. The law was established to minimize the permanent conversion of farmland to nonagricultural uses by Federal programs. This act requires Federal agencies to examine the impact of their programs before they approve any activity that would convert farmland. The U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS) is charged with oversight of the FPPA.

The parcels that make up Alternative 5c (the Watermark Farms mitigation site) are considered by NRCS as farmland of state importance and prime farmland if irrigated and drained (NRCS 2023). NRCS coordination is required for the Sacramento River Mitigation alternative at Watermark Farms due to the presence of Prime Farmland. A Farmland Conversion Impact Rating form has been submitted to NRCS and is included in Appendix E. There are farmlands considered by NRCS as prime if irrigated at the American River Contract 4A site, the ARMS, the SRMS, and the MCP (Appendix B 2.4, Figure 2.4-11) (NRCS 2023). In addition, there are farmlands listed as farmland of state importance at the MCP component. However, all these areas are listed as urbanized areas by the Census Bureau (Appendix B 2.4, Figure 2.4-10) (U.S. Census Bureau 2020). Under the FPPA, areas considered urbanized areas by the Census Bureau are not considered farmland (7 CFR 658.2(a)), so these project components do not apply to the FPPA.

### **6.1.15 Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. § 661 et. seq)**

The Fish and Wildlife Coordination Act (FWCA) of 1958, ensures that fish and wildlife receive consideration equal to that of other project features for projects that are constructed, licensed, or permitted by Federal agencies. The FWCA requires these Federal agencies to consult with USFWS, NMFS, and the California Department of Fish and Wildlife (CDFW) when constructing water resource development projects and consider, analyze, and mitigate for potential effects on fish and wildlife.

In 2015, during preparation of the ARCF GRR FEIS/FEIR, USACE coordinated with USFWS to consider potential effects on vegetation and wildlife from implementation of the overall ARCF 2016 project. On October 5, 2015, USFWS issued a final Coordination Act Report that provided mitigation recommendations (USFWS File # 08ESMF00-20 13-CPA-0020). USACE considered all recommendations and responded to them in the ARCF GRR FEIS/FEIR. Reinitiation of formal consultation with USFWS and NMFS was conducted in 2020 with BO's received in 2021. The Proposed Action would therefore comply with this act.

### **6.1.16 Hazardous Materials Transportation Act of 1975, as amended (49 U.S.C. § 5101 et. seq.)**

The Secretary of the U.S. DOT receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act. DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of Federal laws and regulations pertaining to safe storage and transportation of hazardous materials. 49 CFR Sections 171 through 180, regulate the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. Contractors would be required to comply with the Act for all storage and transportation of hazardous materials and wastes to reduce the possibility of inadvertent releases and spills. The Proposed Action would comply with this law.

### **6.1.17 Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 U.S.C. 1801, et seq.)**

The NMFS defines the term “essential fish habitat” in the Magnuson-Stevens Fishery Conservation and Management Act as waters and substrate of the United States necessary for fish spawning, breeding, or growth to maturity. The Magnuson-Stevens Act requires that Federal agencies consult with NMFS regarding actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). The Project Area is within EFH for fall-run Chinook salmon for the American River projects and corresponding mitigation site. The Proposed Action would involve in-water work, and implementing standard water quality protection measures, stormwater pollution prevention BMPs, and mitigation measures for monitoring and control of turbidity would avoid indirect effects on EFH. Following completion of the ongoing consultation with NFMS, the Proposed Action would be in compliance with this act.

### **6.1.18 Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703, et seq.)**

The Migratory Bird Treaty Act (MBTA) implements a series of international treaties (U.S., Canada, Japan, Mexico, and Russia) that provide for migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it is unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird ...” (16 USC § 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA (50 CFR 10.13) includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property. Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure the Proposed Action is in compliance with the MBTA. Generally, all survey-detected, nesting birds would be avoided with the species-appropriate buffer during construction.

### **6.1.19 National Flood Insurance Program**

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were intended to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP) to subsidize flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community. The maps are designed for flood insurance purposes only and do not necessarily show all areas subject to flooding. The maps designate lands likely to be inundated during a 1 percent (100-year) storm event and elevations of the base flood. They also depict areas between the limits affected by 1 percent (100-year) and 0.2 percent (500-year) events and areas of minimal flooding. Flood Insurance Rate Maps are often used to establish building pad elevations to protect new development from flooding effects.

The ARCF 2016 Project was modified by WRDA 1999 to include improvements to convey an emergency release of 160,000 cfs from Folsom Dam. The Proposed Action would comply with this law.

### **6.1.20 National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101)**

The National Historic Preservation Act (NHPA) is the primary Federal legislation specific to cultural resources. Section 106 of the NHPA (54 U.S.C. § 306108) and its implementing regulations (36 CFR Part 800) require Federal agencies to consider the effects of their undertakings on historic properties. Historic properties are cultural resources that are included in, or are eligible for inclusion in, the NRHP (36 CFR § 800.16[1]). Undertakings include activities directly carried out, funded, or permitted by Federal agencies. Federal agencies must also allow the Advisory Council on Historic Preservation the opportunity to comment on proposed undertakings and their potential effects on historic properties.

Because the ARCF 2016 Project is being implemented in phases, and because implementation of ARCF 2016 Project phases may have an effect on historic properties, USACE consulted with the SHPO and other parties and executed a PA to govern Section 106 compliance. The PA establishes the process USACE follows to comply with Section 106, taking into consideration the views of the signatory and concurring parties and interested Native American Tribes.

The Proposed Action incorporates treatment measures in consideration of cultural resources listed on or eligible for listing on the NRHP, as discussed in Appendix B, Section 5.1, Cultural and Tribal Cultural Resources. Determinations of the specific mitigation measures to be implemented to resolve or avoid effects on historic properties would be made by USACE, in consultation with SHPO and other PA consulting parties, as required by the PA and as described in detail in the HPMP for the ARCF 2016 Project. Specific mitigation measures that are consistent with the PA and the HPMP are also identified in Appendix B, Section 5.1 to address potential impacts on unknown cultural resources that could be discovered during construction.

In accordance with the PA and HPMP procedures, USACE has consulted with Native American Tribes who attach religious or cultural significance to historic properties that may be affected by the proposed undertaking, i.e., Proposed Action. A detailed description of consultation with Native American Tribes is provided under Native American Consultation in Appendix B Section 5.1. In accordance with the PA, USACE will consult with the SHPO, requesting comments on the delineation of the APE, on the adequacy of inventory methods, the findings of cultural resources investigations, NRHP eligibility determinations, and findings of effect for each of the phases of the Proposed Action. USACE also will continue to consult with Native American Tribes, as required under the PA. Through implementation of the actions specified in the PA, the Proposed Action complies with Section 106 of the NHPA.

### **6.1.21 National Wild and Scenic Rivers Act (16 U.S.C. 1271 et. seq.)**

This act was enacted to preserve selected rivers or sections of rivers in their free-flowing condition to protect the quality of river waters and to fulfill other national conservation purposes.

The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981. The Lower American River was listed for having extraordinary anadromous fishery resources and recreation. The NPS administers the Wild and Scenic Rivers Action for the Lower American River and Issues Determinations on the consistency of Proposed Actions with the Wild and Scenic Rivers Act (WSRA). The WSRA applies to the parts of the Proposed Action along the American River, specifically all construction work and some staging associated with Lower American River Erosion Contract 3B, Contract 4A, and the ARMS.

Coordination with the NPS, including design review, has been on-going throughout project development. The goal is to ensure the Proposed Action complies with the WSRA and does not have a direct and adverse effect on the Lower American River's free-flowing nature, water quality, anadromous fishery outstandingly remarkable values, or recreational outstandingly remarkable values. Comments received from the NPS during design review has resulted in modifications that improve consistency with the goals of the WSRA. Appendix H, Wild and Scenic Rivers Act, of this SEIS/SEIR provides information on the WSRA-focused coordination, collaboration and design considerations used in developing the ARCF 2016 Project and the Proposed Action.

USACE has transmitted the Lower American River Erosion Contract 3B WRSA Consistency Analysis and request for consistency review to the NPS. Draft Consistency Analyses have been prepared for Lower American River Erosion Contracts 4A, 4B and ARMS. They are included in Appendix H, Wild and Scenic Rivers Act. As each contract reaches the 95% level of design, the Consistency Analysis will be updated, finalized, and transmitted to the NPS for their review and consideration in making their Consistency Determination. A construction contract will not be awarded until the NPS issues a consistency determination covering that contract. NPS provided comments on the Draft SEIS/SEIR. Their comments and the Project Partner responses are in Appendix I, Public Involvement. Each contract will be in full compliance with the WSRA once it receives a Consistency Determination from the NPS. Occupational Safety and Health Act of 1970 (29 U.S.C. §651 et seq.)

The Occupational Safety and Health Administration (OSHA) is the Federal agency responsible for ensuring worker safety. The Occupational Safety and Health Act and its implementing regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. All workers during construction would comply with OSHA's hazardous materials management and handling requirements including such measures as having all appropriate personal protective equipment (PPE) to reduce the possibility of acute or chronic exposure hazards and protect worker safety. The Proposed Action would comply with this law.

### **6.1.22 Resources Conservation and Recovery Act (RCRA) of 1976 (42 USC § 6901 et seq.)**

The Resource Conservation and Recovery Act (RCRA) was adopted in 1976 and codified in 40 CFR Part 260 to create a framework for a national system of solid waste control. RCRA Subtitle D regulates non-hazardous waste solid waste requirements. RCRA Subtitle C regulates the generation, transportation, treatment, storage, and disposal of hazardous waste by "large-quantity generators" (1,000 kilograms per month or more) as well as "small quantity generators" (under 1,000 kilograms) through comprehensive life cycle or "cradle to grave" tracking requirements.

The requirements include maintaining inspection logs of solid non-hazardous and hazardous waste storage locations, records of quantities being generated and stored, and manifests of pick-ups and deliveries to licensed treatment/storage/disposal facilities. RCRA also identifies standards for treatment, storage, and disposal. Contractors would be required to comply with RCRA hazardous waste requirements to reduce the possibility of inadvertent releases and spills. The Proposed Action would comply with this law.

### **6.1.23 Rivers and Harbors Appropriation Act of 1899 - Sections 9 and 10 (33 U.S.C. §§ 401 and 403)**

Section 9 of the River and Harbors Appropriation Act requires Congress's consent to build a ridge, causeway, dam, or dike over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States. It also requires the Secretary of Transportation, Chief of Engineers, and Secretary of the Army to review and approve plans associated with these projects. Section 10 of the River and Harbors Appropriation Act prohibits construction of any wharf, pier, boom, weir, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines. The Rivers and Harbors Appropriation Act of 1899 applies to the parts of construction work within navigable waters at American River Contract 3B, the ARMS, Sacramento River Erosion Contract 3, and the SRMS. The Proposed Action would comply with this law with funding and authorization to construct provided by Congress.

### **6.1.24 Safe Drinking Water Act of 1974, as amended (42 U.S.C. §300f-300j)**

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs, and ground water wells. SDWA authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. USEPA, states, and the local water system managers work together to ensure these standards are met. The Proposed Action would comply with this law.

### **6.1.25 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. § 4601)**

The Uniform Relocation Act and its implementing regulations (49 CFR 24) ensures the fair and equitable treatment of persons whose real property is acquired or who are displaced as a result of a Federal or Federally assisted project. The Act may provide relocation advisory services, moving costs reimbursement, replacement housing, and reimbursement for related expenses and rights of appeal. The Proposed Action would require acquisition of private property to construct flood risk management improvements. USACE and the NFS would be responsible for any mitigation such as compensation for temporary loss of business, temporary relocation of residents or permanent property acquisition under the Act.

## **6.2 State of California Laws, Regulations, and Policies**

### **6.2.1 Assembly Bill 1007: State Alternative Fuels Plan**

Assembly Bill (AB) 1007 (Chapter 371, Statutes of 2005) required the California Energy Commission (CEC) to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other State, Federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation to public health and environmental quality. The Proposed Action would comply with this law.

### **6.2.2 Assembly Bill 2076: Reducing Dependence on Petroleum**

Pursuant to AB 2076 (Chapter 936, Statutes of 2000), California Energy Commission (CEC) and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, Reducing California's Petroleum Dependence. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT (CEC and CARB 2003). Further, in response to CEC's 2003 and 2005 Integrated Energy Policy Reports, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030. The Proposed Action would comply with AB 2076.

### **6.2.3 California Clean Air Act of 1988**

Section 4.3.5 of this document discusses the effects of the Proposed Action on local and regional air quality. CARB is responsible for the development, implementation, and enforcement of California's motor vehicle pollution control program, GHG statewide emissions and goals, and development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act requires projects to determine whether emission sources and emission levels significantly affect air quality, based on Federal standards established by EPA and State standards set by CARB.

The SMAQMD has local jurisdiction over the Project Area. The analysis in Section 4.3.5 shows that expected short-term project-related emissions would exceed local thresholds administered by SMAQMD but would not exceed annual general conformity thresholds. Additionally, SMAQMD recommends that a lead CEQA agency consider a GHG emissions threshold of 1,100 metric tons/year; the Proposed Action would exceed this GHG emissions threshold. Additional BMPs would be incorporated to reduce GHG emissions during construction, to the maximum extent feasible.

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (226 Cal.App.4th 704), also known as the “Friant Ranch decision,” which requires a project’s environmental documents to include a clear analysis of potential long-term air quality health impacts from the project’s anticipated emissions of air pollutants.

The Proposed Action was analyzed using a health risk analysis (HRA) to identify whether there would be adverse health impacts from emissions during construction. The results of the HRA show that the Proposed Action would be in compliance with the California Clean Air Act and the court’s Friant Ranch holding.

#### **6.2.4 California Endangered Species Act**

The California Endangered Species Act (CESA) requires non-Federal agencies to consider the potential adverse effects on State-listed species. As discussed in Section 4.4.3 of this document, with implementation of mitigation measures, activities associated with the Proposed Action are not anticipated to adversely affect any State-listed species, so no further action is required to achieve compliance with CESA.

#### **6.2.5 California Energy Action Plan**

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 2003 California Energy Action Plan (2008 update). The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access. The Proposed Action would comply with this plan.

#### **6.2.6 California Environmental Quality Act of 1970**

The California Environmental Quality Act (CEQA) requires that State and local agencies identify the significant environmental impacts of their actions, and avoid or mitigate those impacts, when feasible. The CVFPB, as the NFS, will undertake activities to ensure compliance with CEQA. Certification of the final SEIR by the CVFPB would provide full compliance with CEQA.

#### **6.2.7 California Environmental Protection Agency**

The Secretary of the California Environmental Protection Agency (Cal EPA) is directly responsible for coordinating the administration of the Unified Program. The Secretary certifies Unified Program Agencies. The Secretary has certified 83 Certified Unified Program Agencies (CUPAs) to date. These 83 CUPAs carry out the responsibilities previously handled by approximately 1,300 State and local agencies. In January 1996, Cal EPA adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and

hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The CUPA is the local agency that is responsible for the implementation of the Unified Program. The Proposed Action would comply with the United Programs.

### **6.2.8 California Fish and Game Code**

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests of eggs of any bird. Section 3503.3 states that it is unlawful to take, possess, or destroy any raptors, including nests or eggs.

Section 3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory nongame bird, as designated in the Federal MBTA (16 USC 703 et seq.) before January 1, 2017; any additional migratory nongame bird designated in the MBTA after that date; or any part of a migratory nongame bird described in Fish and Game Code Section 3513, except as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the MBTA, unless those rules or regulations are inconsistent with the Fish and Game Code. Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure compliance with this.

### **6.2.9 California Health and Safety Code**

*Hazardous Waste Control Law; Hazardous Materials Transportation—CCR Title 22 and Hazardous Waste Control Law, Chapter 6.5*

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose “cradle-to-grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Cal EPA has delegated some of its authority under the Hazardous Waste Control Law to county health departments and other CUPAs. The Office of the State Fire Marshal is responsible for ensuring implementation of the Hazardous Material Management Plans and the Hazardous Material Inventory Statement Programs. These programs tie in closely with the Hazardous Material Release Response Plan (Business Plan) Program. The Governor’s Office of Emergency Services is responsible for providing technical assistance and evaluation of the Business Plan Program and the California Accidental Release Response Plan Program. The Proposed Action would comply with this law when handling or transporting known or potentially hazardous waste during environmental sampling required for the project.

*California Human Health Screening Levels and California Land Environmental Restoration and Reuse Act of 2001*

The California Human Health Screening Levels (CHHSLs) were developed as a tool to assist in the evaluation of contaminated sites for potential adverse threats to human health. Preparation of the CHHSLs was required by the California Land Environmental Restoration and Reuse Act of

2001 (SB 32) (Chapter 764, Statutes of 2001; OEHHA, 2010). The CHHSLs are concentrations of 54 hazardous chemicals in soil or soil gas that Cal EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment and are contained in its report entitled Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil (OEHHA and Cal EPA 2005). The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of 1 in 1 million and a hazard quotient of 1.0 for noncancer health effects. The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by EPA and Cal EPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most circumstances, the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSLs can be assumed to not pose a significant health risk to people who may live (residential CHHSLs) or work (commercial/industrial CHHSLs) at the site. The Proposed Action would comply with this law during environmental sampling of soil or soil gas prior to construction.

### **6.2.10 California Land Conservation Act of 1965 (Williamson Act)**

The Williamson Act empowers local governments to establish “agricultural preserves” consisting of lands devoted to agricultural uses and other compatible uses. Upon establishment of such preserves, the locality may offer to owners of included agricultural land the opportunity to enter annually renewable contracts that restrict the land to agricultural use for at least 10 years (i.e., the contract continues to run for 10 years following the first date upon which the contract is not renewed). In return, the landowner is guaranteed a relatively stable tax rate, based on the value of the land for agricultural/open space use only and unaffected by its development potential.

As a public agency that may acquire lands within agricultural preserves, including lands under contract, the project proponent(s) is exempt from the normal cancellation process for Williamson Act contracts, because the contract is nullified for the portion of the land acquired (California Government Code Section 51295). The project proponent(s) must provide notice to the California Department of Conservation prior to acquiring such lands (California Government Code Section 51291[b]). A second notice is required within 10 working days after the land is acquired (California Government Code Section 51291[c]). As the land would be acquired for flood damage reduction measures, the project proponent(s) is exempt from the findings required in California Government Code Section 51292 (California Government Code Section 51293[e][1]) because the proposed project consists of flood damage reduction works. The preliminary notice to the California Department of Conservation, provided before lands are acquired, would demonstrate the purpose of the project and the exemption from the findings. There are no lands under Williamson Act contract currently being utilized for the Proposed Action. If new lands come under contract, the NFS would nullify any contracts and mitigate if required by this act or other local regulations protecting farmland.

### **6.2.11 California Native Plant Protection Act**

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and

varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations. Mitigation Measure PLANT-1: 'Implement Measures to Protect Special-Status Plants' would ensure compliance with this law.

### **6.2.12 California Natural Resources Agency Tribal Coordination Policy**

The CVFPB is the State lead agency responsible for CEQA compliance. The California Natural Resources Agency adopted the California Natural Resource Agency Final Tribal Coordination Policy on November 20, 2012, which was developed in response to Governor Brown's September 19, 2011, Executive Order B-10-11. The CVFPB has adopted this, Policy. Accordingly, Native American consultation for CEQA compliance will be conducted in accordance with the Policy adopted by the CVFPB. The purpose of the Policy is to ensure effective, meaningful, and mutually beneficial government-to-government consultation, communication, and coordination between the CVFPB and tribal entities relative to activities under the CVFPB's jurisdiction that may affect tribal communities. USACE and the CVFPB has contacted Native American contacts identified by the California Native American Heritage Commission (NAHC) in an effort to identify cultural resources important to Native American Tribes, including Tribal Cultural Resources (TCRs) as defined in California Public Resources Code Section 21074, that may be present in the project area.

### **6.2.13 Delta Plan**

The Sacramento-San Joaquin Delta Reform Act of 2009 established the Delta Stewardship Council (Council) to create a comprehensive, long-term, legally enforceable plan to guide how multiple Federal, State, and local agencies manage the Delta's water and environmental resources. Any public agency proposing to undertake an action, as defined in Water Code section 85057.5 is encouraged to consult with the Council at the earliest possible opportunities before submittal of the consistency analysis for certification to the Council pursuant to Water Code Section 85225. The Council's staff will meet with the agency's staff to review the consistency of the proposed action and to make recommendations, as appropriate. The Proposed Action will comply with this regulation by providing a consistency analysis to the Delta Stewardship Council.

### **6.2.14 Executive Order S-06-06**

EO S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs State agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet

its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste.
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications.
- Create jobs and stimulate economic development, especially in rural regions of the state.
- Reduce fire danger, improve air and water quality, and reduce waste.

As of 2018, 2.35 percent of the total electricity system power in California was derived from biomass (CEC 2019). The Proposed Action would comply with this law.

### **6.2.15 Integrated Energy Policy Report**

SB 1389 (Chapter 568, Statutes of 2002) required CEC to: “conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state’s economy, and protect public health and safety” (Public Resources Code Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2017 IEPR, the most recent IEPR, was adopted March 16, 2018. The 2017 IEPR summarizes priority energy issues currently facing California, outlining strategies and recommendations to further the State’s goal of ensuring reliable, affordable, and environmentally responsible energy sources. The report covers the following energy topics:

- Progress toward statewide renewable energy targets and issues facing future renewable development.
- Efforts to increase energy efficiency in existing and new buildings.
- Progress by utilities in achieving energy efficiency targets and potential.
- Improving coordination among the State’s energy agencies.
- Streamlining power plant licensing processes.
- Results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand.
- Future energy infrastructure needs.
- The need for research and development efforts to statewide energy policies.
- Issues facing California’s nuclear power plants.

The Proposed Action would comply with this law.

### **6.2.16 Porter-Cologne Water Quality Control Act of 1970**

The Porter-Cologne Water Quality Control Act requires each of the state’s nine regional water quality control boards (RWQCBs) to prepare and periodically update basin plans for water quality control. These basin plans must conform to the policies set forth in the California Water Code (Section 13000 et seq.) and any State policy for water quality control. The jurisdiction of each RWQCB includes Federally protected waters as well as areas that meet the definition of “waters of the State,” which are defined as any surface water or groundwater, including saline waters, within the State’s boundaries. The potential effects of the Proposed Action on water quality have been evaluated and discussed in Appendix B, Section 3.4 Water Quality. The Proposed Action is consistent with the goals and objectives of the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). Full compliance with the Water Quality Control act will be achieved by gaining Federal CWA Section 401 water quality certifications for each project component from the Central Valley RWQCB.

### **6.2.17 Statewide Greenhouse Gas Emissions Targets and the Climate Change Scoping Plan (CEQA-Only)**

Reducing GHG emissions in California has been the focus of the State government for approximately two decades (State of California 2018). GHG emission targets established by the State Legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32, 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32, 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

California’s 2017 [Changing Conditions] Scoping Plan (2017 Scoping Plan) (State of California, CEQA-only), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and “substantially advance toward our 2050 climate goals” (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). CARB and other State agencies are currently developing a Natural and Working Lands [Changing Conditions] Implementation Plan consistent with the carbon neutrality goal of EO B-55-18.

The State has also enacted more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below. The Proposed Action would comply with this law.

## **6.2.18 State Wild and Scenic Rivers Act (PRC Section 5093.545h.)**

The California legislature passed the State Wild and Scenic Rivers Act in 1972 (PRC Section 5093.50-5093.70). The legislature said that it was the State’s intent that “certain rivers which possess extraordinary scenic, recreation, fisheries, or wildlife values shall be preserved in their free-flowing state, together with their immediate environment, for the benefit and enjoyment of the people of the State.” The 23-mile portion of the American River that extends from below Nimbus Dam to the confluence with the Sacramento River has been designated as a Wild and Scenic River for its recreational uses under both the State and Federal Wild and Scenic Rivers Acts. Additionally, the American River Parkway’s recreational uses are designated as an outstanding remarkable value of the river under the Federal Wild and Scenic Rivers Act. In 2008, the County of Sacramento finalized the American River Parkway Plan to provide a guide to land use decisions affecting the Parkway and specifically addressing the Parkway’s preservation, use, development, and administration. The Parkway Plan acts as the management plan for the Federal and State Wild and Scenic Rivers Acts. USACE and the NFS work closely with the County of Sacramento to ensure the Proposed Action does not violate this Act.

## **6.2.19 Sustainable Groundwater Management Act**

The Sustainable Groundwater Management Act (SGMA) of 2014 sets forth a framework for the long-term protection of groundwater resources. The SGMA requires local agencies to form groundwater sustainability agencies for high and medium priority basins and to develop and implement groundwater sustainability plans (GSPs). The California Department of Water Resources supports SGMA implementation through evaluation of GSPs and planning, technical, and financial assistance, and through guiding development of best management practices. The Proposed Action would comply with SGMA by protecting groundwater resources during active construction and avoiding permanent impacts to recharge potential.

## **6.2.20 Warren-Alquist Act**

The 1974 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). This law was enacted in response to the State Legislature’s review of studies projecting an increase in statewide energy demand, which would potentially encourage the development of power plants in environmentally sensitive areas. The act introduced State policy for siting power plants to reduce potential environmental impacts, and additionally sought to reduce demand for these facilities by directing CEC to develop statewide energy conservation measures to reduce wasteful, inefficient, and unnecessary uses of energy. Conservation measures recommended establishing design standards for energy conservation in buildings that ultimately resulted in the creation of the Title 24 Building Energy Efficiency Standards (California Energy Code), which have been updated regularly and remain in effect today. The act additionally directed CEC to cooperate with the Governor’s Office of Planning and Research, the California Natural Resources Agency, and other interested parties in ensuring that a discussion of wasteful, inefficient, and unnecessary consumption of energy is included in all environmental impact reports required on local projects. The Proposed Action would comply with this law.

# Chapter 7. Public Involvement Coordination and Review of the Draft Supplemental EIS/EIR

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Public involvement activities associated with the SEIS/SEIR include public scoping meetings, coordination with USFWS and NMFS, Native American Tribe and agency meetings, distribution of the draft and final SEIS/SEIR for public review and comment; and public meetings to receive comments on the draft SEIS/SEIR. USACE published the Notice of Intent (NOI) to prepare the ARCF SEIS/SEIR in the Federal Register (Vol. 87, No. 194) on October 7, 2022, with an update posted in the Federal Register (Vol. 87, No. 199) on October 17, 2022. USACE and CVFPB held two public scoping meetings on November 2, 2022, and November 30, 2022, to present information to the public and to explain how to submit public comments on the scope of the SEIS/SEIR. Appendix A contains the NOI, the comment letters received during scoping, and the agency responses to comments.

The public comment period for the Draft SEIS/SEIR was held from December 22, 2023, to February 23, 2024 (extended beyond the original 45-Day review period that was scheduled to end on February 5). USACE held two virtual public meetings on January 6, and 10, 2024. USACE mailed postcards about the availability of the SEIS/SEIR for review to communities and businesses surrounding project areas.

# Chapter 8. Submitted Alternatives, Information, and Analyses

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The National Environmental Policy Act (NEPA) requires a Federal agency to fully disclose potential environmental effects of a proposed project with open public participation throughout the decision-making process. Public participation is first achieved in the scoping process, by which the lead Federal agency invites cooperating and participating agencies and interested and potentially affected members of the public to assist in identifying significant impacts to the human and natural environment that could result from the Proposed Action (40 CFR § 1501.9 *Scoping*).

This chapter summarizes the alternatives, information, and analyses submitted by Federal, State, Tribal, and local governments and other public commenters during the scoping process as required by 40 CFR §1502.17 and includes the list of preparers required in 40 CFR §1502.18.

A detailed description of the scoping process which includes the Notice of Intent (NOI), scoping meeting notices, scoping comments received, and their corresponding responses are included in Appendix A.

## 8.1 Summary of the Scoping Process

The formal scoping comment period began with the publication of the NOI in the Federal<sup>1</sup> Register on October 7, 2022, and ended on December 31, 2022. A public notice was posted as a newspaper advertisement in *The Sacramento Bee* on October 19, 2022. Email notification of the scoping period was sent to all known Interested Parties on October 21, 2022. Public scoping meetings were held virtually on November 2, 2022, and on November 30, 2022, from Sacramento, CA. Comments were accepted via the following methods:

- Orally and in writing at the public scoping meeting.
- Via e-mail to ARCF\_SEIS@usace.army.mil.
- Via email to USACE through the project website at [www.sacleveeupgrades.com](http://www.sacleveeupgrades.com).
- Via U.S. mail to Public Affairs Office, U.S. Army Corps of Engineers, 1325 J Street Room 1513, Sacramento, CA 95814.

### 8.1.1 Scoping Comment Analysis

A total of 18 people commented during the scoping period. Ten were members of the public, five were agency, and three were non-profit/organization level. Comments were received from the following Federal, State, or local agencies:

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<sup>1</sup> (FR Vol. 87, No.194/Friday, October 7, 2022)

- United Auburn Indian Community
- U.S. Environmental Protection Agency
- Sacramento Metropolitan Air Quality Management District
- Sacramento County – Regional Parks Department (County Parks)
- Cordova Recreation and Park District

Each communication included multiple comments resulting in 69 categorized comments. Approximately one-third of the comments were related to mitigation concerns, primarily regarding ARMS.

## 8.1.2 Submitted Alternatives, Information and Analysis

As required under 40 CFR § 1502.17 a summary of the scoping process is provided. Several of these mitigation related comments included the commenters preferred alternative and/or supplemental information in support of their preferred alternative to the Proposed Action presented during the scoping meetings. The Scoping Report in Appendix A contains the formal comment responses; however, a summary is provided below of the comment, comment number, general concern, the alternative presented and a response summary.

- 1) Commenter: Save the American River Association (Comment No. 3-2, 3-3, 3-7, and 3-8)
  - a. The ARMS will degrade existing high-quality habitat in the American River Parkway by creating multi-purpose habitat for special-status species.
  - b. Use mitigation banks for elderberry shrub impacts [shrubs are habitat for the Federally threatened valley elderberry longhorn beetle].
  - c. Mitigation sites were chosen according to requirements outlined in the 2015 and 2021 USFWS Biological Opinions.
- 2) Commenter: U.S. Environmental Protection Agency (Comment No. 15-1)
  - a. USACE should consider a full range of alternatives for the various bank erosion and levee protection methods and compare with the alternatives presented in the 2016 ARCF FEIS/EIR.
  - b. None presented.
  - c. The suite of alternatives for levee improvements is presented in the 2016 GRR FEIS/EIR. A brief alternative analysis and selection process for the Design Refinements is described in the Chapter 2 of this Draft SEIS/SEIR which presents how each refinement helps achieve the purpose and need of the ARCF Program.
- 3) Commenter: County Parks (Comment No. 17-2)
  - a. The Proposed Action for ARMS would eliminate a unique wildlife habitat feature [man-made pond] and the associated interpretive and wildlife viewing values to protect a vulnerable fish population from periodic stranding.

- b. USACE should consider an alternative at the ARMS that supports habitat enhancement by preserving a substantial portion of the isolated 30-acre pond.
  - c. The recommended alternative will be analyzed in accordance with the State's California Environmental Quality Act (CEQA) Guidelines.
- 4) Commenter: Member of the Public (Comment No. 19-1)
- a. The Proposed Action for ARMS would result in the loss of an important roosting site for water birds and ultimately reduce the use of the lower stretches of the American River.
  - b. Systematic bird surveys should be conducted at man-made pond to protect the important habitat component for night roosting and daytime feeding habitat. Survey data should be considered during mitigation development. Information submitted includes bird species and data counts from the American River Natural History Association Wildlife Count and Sacramento Christmas Bird Count.
  - c. The value of existing wildlife habitat was considered during mitigation alternative development and will be preserved to the greatest extent while also complying with Endangered Species Act mitigation requirements.

# Chapter 9. List of Prepares and Reviewers

## 9.1 List of Preparers and Reviewers

This SEIS/SEIR was prepared by USACE, Sacramento District, and GEI Consultants, Inc. at the direction of DWR and CVFPB. The following is a list of the individuals who prepared the document, provided substantive background materials, or provided project description engineering clarifications.

### U.S. Army Corps of Engineers, Sacramento District

Name	Title	Qualifications and Experience	Contributions
Guy Romine	ARCF Environmental Lead, Regional Technical Specialist	B.S. Geology, 36 years' experience	SEIS Project Manager
Keleigh Duey	Senior Environmental Manager	B.S. Biology (Ecology & Biodiversity), 9 years' experience	SEIS Led, Document Review, NEPA Compliance, Socioeconomics
Nathaniel Martin	Senior Environmental Manager	B.S. Environmental Studies, M.S. Public Policy & Administration, 23 years' experience	SEIS Led, Document Review, NEPA Compliance, Project Description Development/Coordination
Lorena Guerrero	Biologist	B.S. Environmental Science (Ecological Restoration), 7 years' experience	Document Review, Public Utilities and Service Systems
Nicole Schleeter	Environmental Manager	B.S. Environmental Science, 9 years' experience	Document Review, Mitigation Lead, FPPA Compliance, Vegetation & Wildlife
Mariah Brumbaugh	NEPA Regional Technical Specialist	B.S. Biology, M.S. Biology. 21 years' experience.	NEPA Compliance and District Quality Control Review
Susannah Lemke	Historian/ District	B.A. History, M.A. Northern Studies/ Museum Studies, 8 years' experience.	Social Impacts to At-Risk Communities
Ashley Lopez	Environmental Manager	B.S. Biology, B.S. Mathematics, M.S. Applied Mathematics, 5 years' experience	Social Impacts to At-Risk Communities
Andrea Meier	Chief, Environmental Analysis Section	B.S. Environmental Toxicology, Master of Public Policy and Administration, Field Ecology Certification, CPESC, and QSD/QSP; 21 years of experience	First-line supervisory review, staffing resource management, technical guidance, and field survey guidance
Michael D. Porter	Fishery Regional Technical Specialist	B.S. Wildlife Management, M.S. Biology, Ph.D. Fisheries Biology, 23 years of experience	Document Review, NEPA Compliance, Mitigation

Name	Title	Qualifications and Experience	Contributions
Samantha Ezratty	Environmental Manager	B.S. Environmental Policy Analysis and Planning, 4 years of experience	Document Review, Air Quality
Blake Prawl	Environmental Manager	B.S. in Environmental Studies, 6 years of experience.	Magpie Creek Lead, Land Use
Bailey Hunter	Environmental Manager	B.S. Environmental Science (Ecological Restoration), M.S. Plant Biology, 10 years' experience	Lower American River Lead, Project Description, Recreation, Aesthetics and Visual Resources, Mapping.
Geneva Kraus	Chief, Cultural, Recreational, and Social Assessment Section	B.A. Anthropology (minor Geology), M.A. Anthropology, 15 years of experience	First-line supervisory review, staffing resource management, technical guidance, and field survey guidance.
Joanne Goodsell	Cultural Regional Technical Specialist	B.S. Physical Education (minor Classical Civilization), M.A. Anthropology / Archaeology, 18 years of experience.	Document review, Quality Control review, Cultural and Tribal Resources
Jessica Tudor Elliott	Senior Archaeologist	B.A. in Anthropology, M.A. in Cultural Resources Management, 17 years of experience	Document review, Cultural and Tribal Resources, Section 106 Compliance
Brad Anderson	Ecologist	Certified Ecologist, MESM (Master of Environmental Science and Management), B.A. Anthropology; 6 years of experience	Special Status Species, Federal and State Laws and Regulations
Shaylene Drayer	Environmental Manager	B.S. Environmental Studies, Minor in Biology; 12 years' experience	Vegetation & Wildlife, Special Status Species
Melissa Dyer <sup>1</sup>	Environmental Manager	B.S. Environmental Toxicology; 18 years' experience	Sacramento River Led, Water Quality, Hydrology and Hydraulics, HTRW

<sup>1</sup> No longer employed at USACE, Sacramento District

### GEI Consultants, Inc.

Name	Title	Qualifications and Experience	Contributions
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# Chapter 10. References

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## 10.0 Introduction

See Section 2.1.1 for Related Resources and Documents used in Chapter 1.

## 10.1 Description of Project Alternatives

County of Sacramento Regional Parks Department (Parks) 2022. Response letter to the Notice of Intent to Prepare a Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report for the 2016 American River Watershed Common Features Project, Sacramento CA. December 30, 2022.

GEI Consultants and Sacramento Area Flood Control Agency (SAFCA). 2016 (July). Sacramento River East Levee, Lower American River, and Related Flood Improvements Project Final Environmental Impact Report.

GEI Consultants, cbec, and ICF. 2020. American River Common Features Mitigation Site Concept Development and Evaluation Report. Accessed May 3, 2023.

HDR and Ford Engineers. 2019. Lower American River - Subreach 1, 3, and 4 Tier Classification Technical Memorandum. November 13, 2019. Sacramento, CA.

Jones & Stokes. 2002. Ecosystem restoration plan for flood plain resources in the Lower American River. February. (J&S 00-350.) Sacramento, CA. Prepared for Sacramento Area Flood Control Agency, Sacramento, CA.

National Marine Fisheries Service (NMFS). 2021. *Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the American River Common Features General Reevaluation Report Reinitiation.*

U.S. Fish and Wildlife Service (USFWS). 2015. American River Common Features General Evaluation Report Fish and Wildlife Coordination Act Report. Available: [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/ARCF\\_Fish-and-Wildlife-Coordination-Act-Report\\_5OCT15.pdf?ver=5q7LU7Ux0NbBvfn\\_mu\\_qnQ%3d%3d](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/ARCF_Fish-and-Wildlife-Coordination-Act-Report_5OCT15.pdf?ver=5q7LU7Ux0NbBvfn_mu_qnQ%3d%3d). Accessed February 10, 2023.

U.S. Army Corps of Engineers (USACE). 2016. American River Watershed Common Features General Reevaluation Report. Sacramento, CA.

\_\_\_\_\_. 2022a. Design Documentation Report American River Common Features Erosion Protection Contract 3B: 65% Submittal. Saint Paul, MN: Saint Paul District.

- \_\_\_\_\_. 2022b. American River Common Features Project, Sacramento River Contract 2, Final Supplemental Environmental Assessment XI. Available:  
[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF\\_SRC2\\_Final-SEA\\_Dec2022.pdf?ver=hWf-VMIKPnIP5Iik8Y-sag%3d%3d](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF_SRC2_Final-SEA_Dec2022.pdf?ver=hWf-VMIKPnIP5Iik8Y-sag%3d%3d). Accessed August 31, 2023.
- U.S. Army Corps of Engineers (USACE) and Central Valley Flood Protection Board (CVFPB). 2016 (May). American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Final Environmental Impact Report. Available:  
<http://www.spk.usace.army.mil/Missions/Civil-Works/Sacramento-Area-Levees/>. Accessed December 6, 2021.
- \_\_\_\_\_. 2019 (November). American River Watershed Common Features, Water Resources Development Act of 2016 Project, Supplemental Environmental Assessment (SEA)/ Environmental Impact Report (EIR), Sacramento River East Levee Contract 1. Available:  
[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/SREL-C1\\_FinalSEA-EIR\\_8Nov19.pdf?ver=2020-01-30-131539-810](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/SREL-C1_FinalSEA-EIR_8Nov19.pdf?ver=2020-01-30-131539-810). Accessed January 12, 2023.
- \_\_\_\_\_. 2020 (September). American River Watershed Common Features Water Resources Development Act of 2016 Project, Supplemental Environmental Assessment (SEA)/ Environmental Impact Report (EIR), Sacramento River East Levee Contract 2. Available:  
[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/SREL-C2/ARCF\\_SREL-C2\\_Final-SEA-SEIR\\_Oct2020.pdf](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/SREL-C2/ARCF_SREL-C2_Final-SEA-SEIR_Oct2020.pdf). Accessed: Accessed January 12, 2023.
- \_\_\_\_\_. 2021a (August). American River Watershed Common Features, Water Resources Development Act of 2016, Sacramento Weir Widening Supplemental Environmental Impact Statement/Environmental Impact Report. Available:  
[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/Sac\\_Weir/ARCF\\_SacWeir\\_Final-SEIS-EIR\\_August2021.pdf](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/Sac_Weir/ARCF_SacWeir_Final-SEIS-EIR_August2021.pdf). Accessed: Accessed January 12, 2023.
- \_\_\_\_\_. 2021b (October). American River Watershed Common Features, Water Resources Development Act of 2016, Sacramento River East Levee Contract 3 Final Supplemental Environmental Impact Report Supplemental Environmental Assessment. Available:  
[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/SREL-C3/ARCF16\\_SREL-C3\\_Final-SEIR-SEA\\_Nov2021.pdf](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/SREL-C3/ARCF16_SREL-C3_Final-SEIR-SEA_Nov2021.pdf). Accessed January 12, 2023.
- \_\_\_\_\_. 2021c (October). American River Watershed Common Features, Water Resources Development Act of 2016, American River Erosion Contract 1 Final Supplemental Environmental Assessment/Supplemental Environmental Impact Report. Available:  
<http://www.spk.usace.army.mil/Missions/Civil-Works/Sacramento-Area-Levees/>. Accessed December 6, 2021.

- \_\_\_\_\_. 2021d (September). American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 2 Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report. Available: <http://www.spk.usace.army.mil/Missions/Civil-Works/Sacramento-Area-Levees/>. Accessed December 6, 2021.
- \_\_\_\_\_. 2022a (October). American River Watershed Common Features, Water Resources Development Act of 2016, Sacramento River East Levee Contract 4 (SREL C4) Final Supplemental Environmental Impact Report and Supplemental Environmental Assessment. Available: [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF\\_SREL-C4\\_FinalSEIR-SEA\\_Oct2022.PDF](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF_SREL-C4_FinalSEIR-SEA_Oct2022.PDF). Accessed: Accessed January 12, 2023.
- \_\_\_\_\_. 2022b (November). American River Watershed Common Features, Water Resources Development Act of 2016, American River Erosion Contract 3A Final Supplemental Environmental Assessment/Supplemental Environmental Impact Report. Available: <http://www.spk.usace.army.mil/Missions/Civil-Works/Sacramento-Area-Levees/>. Accessed January 12, 2023.
- U.S. Army Corps of Engineers (USACE), Sacramento Area Flood Control Agency (SAFCA), and Central Valley Flood Protection Board (CVFPB). 2019a (February). American River Common Features 2016 Project Sacramento River, Reach D, Contract 1 Front Street Stability Berm Final Supplemental Environmental Assessment Final Supplemental Initial Study. Available: [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/ARCF-16\\_ReachD-Contract1\\_FinalSEA-IS.pdf?ver=2019-03-29-110522-563](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/ARCF-16_ReachD-Contract1_FinalSEA-IS.pdf?ver=2019-03-29-110522-563). Accessed: {Add date accessed}.
- \_\_\_\_\_. 2019b (June). American River Watershed Common Features 2016 Project Beach Stone Lakes Mitigation Site, Supplemental Environmental Assessment Supplemental Initial Study. Available: [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/ARCF-2016-BSLMS\\_FinalSEA-IS\\_Jun2019.pdf?ver=2019-07-26-114134-363](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/ARCF-2016-BSLMS_FinalSEA-IS_Jun2019.pdf?ver=2019-07-26-114134-363). Accessed: {Add date accessed}.
- \_\_\_\_\_. 2021a (June). American River Watershed Common Features Water Resources Development Act 2016 Project, Sacramento River Erosion Contract 1: River Mile 55.2 Left Bank Protection Final Supplemental Environmental Assessment/Supplemental Environmental Impact Report. : [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF16\\_SRC1\\_Final-SEA-EIR\\_June2021.pdf](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF16_SRC1_Final-SEA-EIR_June2021.pdf). Accessed: {Add date accessed}.
- \_\_\_\_\_. 2021b (September). American River Watershed Common Features Water Resources Development Act 2016 Project, American River Contract 2: Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report. Available:

[/https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/AmericanRiver/ARCF\\_ARC2\\_Final-SEIS-SEIR\\_Sep2021.pdf](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/AmericanRiver/ARCF_ARC2_Final-SEIS-SEIR_Sep2021.pdf).  
[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF16\\_SRC1\\_Final-SEA-EIR\\_June2021.pdf](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W RDA16/Documents/Sac-River/ARCF16_SRC1_Final-SEA-EIR_June2021.pdf) Accessed: 7/26/2023.

## 10.2 Affected Environment and Environmental Consequences

### 10.2.1 Aesthetics/Visual Resources

California Department of Transportation. 2008. *Scenic Highway Guidelines*. Available: <https://dot.ca.gov/-/media/dot-media/programs/design/documents/scenic-hwy-guidelines-04-12-2012.pdf>. Accessed July 13, 2023.

California Department of Transportation. 2023. *Scenic Highways*. Available: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed January 24, 2023.

California Department of Technology. 2022. *Vistas*. Available: <https://gis.data.ca.gov/search?q=vistas>. Accessed January 24, 2023.

City of Sacramento. 2013. *Title 17 Planning and Development Code*. Available: [https://library.qcode.us/lib/sacramento\\_ca/pub/city\\_code/item/title\\_17](https://library.qcode.us/lib/sacramento_ca/pub/city_code/item/title_17). March 21, 2023.

\_\_\_\_\_. 2015. *2035 General Plan*. Available: <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan>. Accessed January 25, 2023.

City of Sacramento Planning. 2023. *Open Data Portal, Land Information Look Up App*. Available: <https://www.arcgis.com/apps/webappviewer/index.html?id=6f8e021cb286482b9a649e33ac6e67ea>. Accessed March 21, 2023.

Sacramento County. 2017. *Sacramento County General Plan of 2005 to 2030, Open Space Element*. Available: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Open%20Space%20Element%20-%20Amended%2009-26-17.pdf>. Accessed January 25, 2023.

Sacramento County. 2023. *Sacramento County Zoning Code*. Available: [https://planning.saccounty.net/LandUseRegulationDocuments/Documents/Zoning-Code/Zoning\\_Code\\_Full\\_1.13.23.pdf](https://planning.saccounty.net/LandUseRegulationDocuments/Documents/Zoning-Code/Zoning_Code_Full_1.13.23.pdf). Accessed March 21, 2023.

United States Department of Transportation Federal Highway Administration (FHWA). 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*. Available: [https://www.environment.fhwa.dot.gov/env\\_topics/other\\_topics/VIA\\_Guidelines\\_for\\_Highway\\_Projects.pdf](https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.pdf). Accessed January 27, 2023

United States Department of Transportation Federal Highway Administration (FHWA). 2023a. *National Scenic Byways & All-American Roads: About America's Byways*. Available: <https://fhwaapps.fhwa.dot.gov/bywaysp/About>. Accessed March 22, 2023.

United States Department of Transportation Federal Highway Administration (FHWA). 2023b. *National Scenic Byways & All-American Roads*. Available: <https://fhwaapps.fhwa.dot.gov/bywaysp/States/Show/CA>. Accessed January 25, 2023.

## 10.2.2 Transportation and Circulation

City of Sacramento. 2015. *General Plan: Mobility Element*. Available: <http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/General-Plan/2035-GP/Mobility.pdf?la=en>. Accessed: March 2023.

County of Sacramento. 2022. *General Plan: Circulation Element*. Amended October 2 Available: <https://planning.saccounty.net/PlansandProjectsIn-Progress/Documents/General%20Plan%20Amendments/Circulation%20Element%20-%20Amended%2010-25-22.pdf>. Accessed: March 2023.

\_\_\_\_\_. 2008. *American River Parkway Plan*. Available: [https://regionalparks.saccounty.gov/Parks/Documents/Parks/ARPP06-092617\\_sm.pdf](https://regionalparks.saccounty.gov/Parks/Documents/Parks/ARPP06-092617_sm.pdf). Accessed: March 2023.

Transportation Research Board (T.R.B.). 2000. *Highway Capacity Manual 2000*. Washington, DC. Available: [https://sjnavarro.files.wordpress.com/2008/08/highway\\_capacital\\_manual.pdf](https://sjnavarro.files.wordpress.com/2008/08/highway_capacital_manual.pdf). Accessed: March 2023.

United States Army Corps of Engineers (USACE). 2015. *American River Common Features General Reevaluation Report: Final Environmental Impact Statement, Environmental Impact Report*. December 2015.

## 10.2.3 Recreation

City of Sacramento. 2009. *Parks and Recreation Master Plan 2005-2010*. Available: <http://www.cityofsacramento.org/-/media/Corporate/Files/ParksandRec/parks-planning/masterplan2005-2010.pdf?la=en>. Accessed February 10, 2023.

\_\_\_\_\_. 2012. *American and Sacramento River Parkway Plans 2012 Implementation Program*. Available: <https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Projects/Sac-River-Pkwy/2012-American-and-Sacramento-River-Parkway-Plans.pdf?la=en>. Accessed March 6, 2023.

\_\_\_\_\_. 2015. *2035 General Plan*. Available: <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan>. Accessed January 25, 2023.

- \_\_\_\_\_. 2023a. *Parks Directory*. Available:  
<https://www.cityofsacramento.org/ParksandRec/Parks/Park-Directory>. Accessed February 12, 2023.
- \_\_\_\_\_. 2023b. *University Park North/South*. Available:  
<https://www.cityofsacramento.org/ParksandRec/Parks/Park-Directory/Arden-Arcade/University-Park>. Accessed February 12, 2023.
- \_\_\_\_\_. 2023c. *Download Options: Park*. Available:  
[https://data.cityofsacramento.org/datasets/b3047674f3f04a759c484fe5208faf6c\\_0/explore?location=38.552114%2C-121.471878%2C11.01](https://data.cityofsacramento.org/datasets/b3047674f3f04a759c484fe5208faf6c_0/explore?location=38.552114%2C-121.471878%2C11.01). Accessed March 6, 2023.
- \_\_\_\_\_. 2023d. *Walter S Ueda Parkway*. Available:  
<https://www.cityofsacramento.org/ParksandRec/Parks/Park-Directory/South-Natomas/WalterUedaParkway>. Accessed March 6, 2023. Cordova Recreation and Park District. 2023. *Larchmont Community Park*. Available: <https://crpd.com/parks/larchmont-community-park/>. Accessed January 27, 2023
- Cordova Recreation and Park District. 2014. Master Plan for New Development in Incorporated Areas. Available: [https://crpd.com/wp-content/uploads/CRPD-Master-Plan\\_Chapter-1-3-1.pdf](https://crpd.com/wp-content/uploads/CRPD-Master-Plan_Chapter-1-3-1.pdf). Accessed February 16, 2023
- Cordova Recreation and Park District. 2023. Larchmont Community Park. Available: <https://crpd.com/parks/larchmont-community-park/>. Accessed May 30, 2023.
- Heritage Conservation & Recreation Service. 1980. *Evaluation Report on the Eligibility of five California Rivers for Inclusion in the Wild & Scenic Rivers System*. Available: <https://rivers.gov/documents/studies/american-eel-klamath-smith-trinity-study.pdf>. Accessed January 27, 2023
- Mission Oaks Recreation and Park District. 2013. *Mission Oaks Recreation and Park District Master Plan 2013-2022*. Available:  
<https://www.morpd.com/files/d0079c33b/Master+Plan+2013-2022+Executive+Summary.pdf>. Accessed February 16, 2023.
- Sacramento County. 2003. Dry Creek Parkway Recreation Master Plan. Available:  
<https://regionalparks.saccounty.gov/Parks/Documents/DCPRMP-Final.pdf>. Accessed March 6, 2023.
- \_\_\_\_\_. 2008. *American River Parkway Plan*. Available:  
[https://regionalparks.saccounty.gov/Parks/Documents/Parks/ARPP06-092617\\_sm.pdf](https://regionalparks.saccounty.gov/Parks/Documents/Parks/ARPP06-092617_sm.pdf). Accessed July 19, 2021.
- \_\_\_\_\_. 2011. *Bicycle Master Plan*. Available:  
[https://sacdot.saccounty.net/Documents/A%20to%20Z%20Folder/Bikeways/AdoptedSacCountyBMP\\_04.27.11.pdf](https://sacdot.saccounty.net/Documents/A%20to%20Z%20Folder/Bikeways/AdoptedSacCountyBMP_04.27.11.pdf). Accessed February 10, 2023

- \_\_\_\_\_. 2017. *Sacramento County General Plan of 2005 to 2030, Open Space Element*. Available: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Open%20Space%20Element%20-%20Amended%2009-26-17.pdf>. Accessed January 25, 2023.
- \_\_\_\_\_. 2023a. *Final American River Parkway Natural Resources Management Plan*. Available: <https://regionalparks.saccounty.gov/Parks/Pages/NaturalResourcesManagement.aspx> . Accessed March 20, 2023.
- \_\_\_\_\_. 2023b. *Download Options: Parks*. Available: <https://data-sacramentocounty.opendata.arcgis.com/datasets/parks-1/explore?location=38.375037%2C-121.442213%2C10.32>. Accessed March 6, 2023.
- \_\_\_\_\_. 2023c. *Download Options: Park Districts*. Available: <https://data-sacramentocounty.opendata.arcgis.com/datasets/park-districts-2/explore?location=38.318242%2C-120.898481%2C9.41>. Accessed March 6, 2023.
- \_\_\_\_\_. 2023d. *Dry Creek Parkway*. Available: <https://regionalparks.saccounty.gov/Parks/RegionalParksDetails/Pages/DryCreekParkway.aspx>. Accessed March 6, 2023.
- \_\_\_\_\_. 2023e. *Regional Parks-About Us*. Available: <https://regionalparks.saccounty.gov/Pages/AboutUs.aspx>. Accessed February 16, 2023.
- Sacramento Valley Conservancy. 2023. *Visit Camp Pollock*. Available: <https://sacramentovalleyconservancy.org/camp-pollock/#1574289050732-03224688-387d>. Accessed February 23, 2023.
- Taylor, L.L. 2022. Letter from Cordova Recreation and Park District regarding: American River Common Features Project Notice of Intent to Prepare a Draft Supplemental Environmental Impact Statement in addition to a Draft Subsequent Environmental Impact Report XIV regarding the Lower American River Contracts 3B and 4A Public Scoping Comment Period October 31 to December 31, 2022.
- U.S. Army Corps of Engineers (USACE) and Central Valley Flood Protection Board (CVFPB). 2020. American River Watershed Common Features Water Resources Development Act of 2016, Sacramento River East Levee Contract 2 Supplemental Environmental Assessment/Environmental Impact Report. Available: [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/WRDA16/SREL-C2/ARCF\\_SREL-C2\\_Final-SEA-SEIR\\_Oct2020.pdf?ver=MF7fJl3DKcBypwyt5yJGqA%3d%3d](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/WRDA16/SREL-C2/ARCF_SREL-C2_Final-SEA-SEIR_Oct2020.pdf?ver=MF7fJl3DKcBypwyt5yJGqA%3d%3d) Accessed February 12, 2023.
- \_\_\_\_\_. 2021d. American River Watershed Common Features Water Resources Development Act of 2016, American River Erosion Contract 2 Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report. Available: [https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/WRDA16/Documents/AmericanRiver/ARCF\\_ARC2\\_Final-SEIS-](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/WRDA16/Documents/AmericanRiver/ARCF_ARC2_Final-SEIS-)

SEIR\_Sep2021.pdf?ver=pDiYurBZ38lozpSLPYC7nA%3d%3d. Accessed January 27, 2023.

US Census. 2022. *Quick Facts*. Available: <https://www.census.gov/quickfacts>. Accessed February 16, 2023.

#### **10.2.4 Public Utilities and Services**

California Department of Resources and Recycling (CalRecycle). 2021. 2018 CalRecycle Enforcement Report. Publication #DRRR-2021-1703. Sacramento, CA.

California Department of Forestry and Fire Protection (CALFIRE). 2018. 2018 Strategic Fire Plan for California. Sacramento, CA.

California Department of Forestry and Fire Protection (CALFIRE). 2022. 2022 Strategic Fire Plan Amador El Dorado Unit. Sacramento, CA.

California Department of Forestry and Fire Protection (CALFIRE). 2022b. State Responsibility Area Fire Hazard Severity Zone- Sacramento County. Available: <https://frap.fire.ca.gov>. Accessed February 13, 2023.

California Department of Resources Recycling and Recovery (CalRecycle). 2021. “Landfill Tonnage Reports”. <https://www2.calrecycle.ca.gov/LandfillTipFees/>. Accessed February 15, 2023.

California Department of Resources Recycling and Recovery (CalRecycle). 2023. “Legislation and Regulations”. Available: <https://calrecycle.ca.gov/laws/>. Accessed February 13, 2023.

California Natural Resources Agency Department of Water Resources (DWR). 2019. California Water Plan Update 2018. Sacramento, CA

California Natural Resources Agency Department of Water Resources (DWR). 2023. California Water Plan Update 2023. Available: <https://water.ca.gov/Programs/California-Water-Plan/Update-2023>. Accessed March 8, 2023.

California American Water. 2023. *About Us*. Available: <https://www.amwater.com/caaw/About-Us/>. Accessed February 13, 2023.

City of Sacramento. 2021. City of Sacramento 2020 Urban Water Management Plan *Final Report* June 2021. Project No. 038-60-19-53. Sacramento, CA.

City of Sacramento. 2015. *2035 General Plan- Public Health and Safety*. Available: <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan>. Accessed February 13, 2023.

- City of Sacramento. 2015b. *2035 General Plan- Utilities*. Available: <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan>. Accessed February 13, 2023.
- County of Sacramento. 2023. “Water Resources”. Available: Sacramento County Water Agency ([saccounty.gov](http://saccounty.gov)). Accessed February 13, 2023.
- County of Sacramento. 2021. “Sacramento County Water Purveyors”. Available: <https://waterresources.saccounty.gov/Pages/Sacramento-County-Water-Agency-Find-My-Water-Comany.aspx>. Accessed February 13, 2023.
- County of Sacramento. 2019. *General Plan- Public Facilities Element*. Available: <https://planning.saccounty.net/PlansandProjectsInProgress/Documents/General%20Plan%20Amendments/Public%20Facilities%20Element%20-%20Amended%2012-17-19.pdf>. Accessed March 9, 2023.
- County of Sacramento. 2019b. “Stormwater Utility Service Area”. Available: <https://waterresources.saccounty.gov/stormready/Pages/Stormwater-Utility-Map.aspx>. Accessed February 14, 2023.
- County of Sacramento. 2013. “Receiving Water Map”. Available: <https://waterresources.saccounty.gov/stormwater/Documents/Receiving-Water-Map.pdf>. Accessed February 14, 2023.
- County of Sacramento. 1993. *General Plan- Public Facilities Element-Background to the 1993 General Plan as Amended*. Available: <https://planning.saccounty.net/PlansandProjectsInProgress/Documents/General%20Plan%202030/Public%20Facilities%20Element%20Background.pdf> Accessed February 13, 2023.
- Regional Water Authority. 2018. Strategic Plan. Available: <https://rwah2o.org/wp-content/uploads/2016/02/RWA-Strategic-Plan-2018.pdf>. Accessed February 13, 2023.
- Rio Linda Elverta Community Water District. 2014. *Water Master Plan- Final*. Prepared by Affinity Engineering. Prepared for Rio Linda Elverta Community Water District. Available: <http://www.rlecwd.com/wp-content/uploads/2014/09/Master-Plan-Final-E-Copy.pdf>. Accessed February 13, 2023.
- Rio Linda Elverta Community Water District. 2019. *Rio Linda Elverta Community Water District Strategic Plan 2019-2024*. Available: <http://www.rlecwd.com/wp-content/uploads/2019/10/Item-4.4-RLECWD-Strategic-Plan-Final-10-21-2019.pdf>. Accessed February 13, 2023.
- Sacramento County Water Agency. 2021. *2020 Urban Water Management Plan*. Prepared by Tully & Young Comprehensive Water Planning. Prepared for Department of Water Resources, Sacramento County Water Agency, Sacramento, CA. Available: [https://waterresources.saccounty.gov/scwa/Documents/Engineering%20Reports/2020%20Water%20Shortage%20Contingency%20Plan%20-%20Public%20Draft%20\(002\).pdf](https://waterresources.saccounty.gov/scwa/Documents/Engineering%20Reports/2020%20Water%20Shortage%20Contingency%20Plan%20-%20Public%20Draft%20(002).pdf). Accessed February 13, 2023.

Sacramento Suburban Water District. 2023. "District at a Glance". Available: <https://www.sswd.org/about/district-at-a-glance>. Accessed February 13, 2023.

Sacramento Suburban Water District. 2019. *Strategic Plan 2019*. Available: <https://www.sswd.org/home/showpublisheddocument/9075/636969663047730000>. Accessed February 13, 2023.

Sacramento Regional County Sanitation District (RegionalSAN). 2017. "RegionalSAN Service Area". Available: <https://www.regionalsan.com/service-area#:~:text=Regional%20San%20provides%20wastewater%20conveyance,of%20Courtland%20and%20Walnut%20Grove>. Accessed February 13, 2023.

Water Forum. 2015. Water Forum Agreement. Available: <https://waterforum.org/wp-content/uploads/2014/08/Water-Forum-Agreement-Update-2015-FINAL-FOR-PRINT2.pdf>. Accessed February 13, 2023.

## 10.2.5 Land Use and Prime and Unique Farmlands

California Department of Conservation (DOC). 2016. California Important Farmland: Most Recent. Available: <https://gis.data.ca.gov/datasets/cadoc::california-important-farmland-most-recent/explore?location=38.550153%2C-121.385422%2C11.69>. Accessed March 15, 2023.

City of Sacramento. 2022. General Plan GIS Open Data. Available: [https://data.cityofsacramento.org/datasets/ff85c31ca94e4a0092f6a0158ad328e2\\_0/explere?location=38.523012%2C-121.182385%2C10.81](https://data.cityofsacramento.org/datasets/ff85c31ca94e4a0092f6a0158ad328e2_0/explere?location=38.523012%2C-121.182385%2C10.81). Accessed March 15, 2023.

City of Sacramento. 2015. General Plan. Available: <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan>. Accessed: May 30, 2023

County of Sacramento. 2008. American River Parkway Plan. Available: <https://regionalparks.saccounty.gov/Parks/Pages/ParkwayPlan.aspx>. Accessed: March 6, 2023.

County of Sacramento. Amended 2019. General Plan: Agricultural Element. Available: <https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Agricultural%20Element%20-%20Amended%2012-17-2019.pdf>. Accessed: May 30, 2023.

County of Sacramento. 2022. General Plan 2023. Sacramento County GIS Open Data Site. Available: <https://data-sacramentocounty.opendata.arcgis.com/datasets/sacramentocounty::general-plan-2030/explore?location=38.523125%2C-121.141456%2C10.46>. Accessed March 15, 2023.

County of Sacramento. 2023a. Final American River Parkway Natural Resources Management Plan. Available:

<https://regionalparks.saccounty.gov/Parks/Pages/NaturalResourcesManagement.aspx> . Accessed March 20, 2023.

County of Sacramento. 2023b. General Map Viewer: Online Map. Available: [https://generalmap.gis.saccounty.gov/JSViewer/county\\_portal.html](https://generalmap.gis.saccounty.gov/JSViewer/county_portal.html). Accessed: May 10, 2023.

County of Yolo. 2009. County of Yolo 2030 Countywide General Plan. Available: <https://www.yolocounty.org/home/showpublisheddocument/14465/63528938053520000>. Accessed May 11, 2023.

County of Yolo. 2022. Yolo County Code of Ordinances. Available: <https://codelibrary.amlegal.com/codes/yolocounty/latest/yolo/0-0-0-18800>. Accessed May 11, 2023.

County of Yolo. 2023. Yolo County GIS Viewer. Available: <https://yolo.maps.arcgis.com/apps/webappviewer/index.html?id=07aafdb9df8b40fea378723de601c69b&extent=-13651962.5683%2C4642419.391%2C-13505203.474%2C4708996.0427%2C102100>. Accessed May 30, 2023.

U.S. Census Bureau. 2020. TIGER/Line Geodatabases 2020 National Level Urban Areas National Geodatabases. Available: <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-geodatabase-file.2020.html#list-tab-1258746043>. Accessed May 25, 2023.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2023. Gridded Soil Survey Geographic Database for California. Available: <https://www.nrcs.usda.gov/resources/data-and-reports/gridded-soil-survey-geographic-gssurgo-database>. Accessed: May 26, 2023.

## **10.2.6 Social Impacts to At-Risk Communities**

California Department of Education. 2024. Title I, Part A Recipients Fiscal Year 2023-2024. Available: <https://www.cde.ca.gov/sp/sw/t1/documents/tipaschlallocation2324.xlsx>. Accessed November 13, 2024.

California State University, Sacramento. 2022. Homelessness in Sacramento County: Results from the 2022 Point-in-Time Count. Sacramento, CA: Division of Social Work and the Center for Health Practice, Policy and Research. Prepared for Sacramento Steps Forward and Sacramento Continuum of Care.

Council of Environmental Quality (CEQ). 1997. *[Social Impacts], Guidance under the National Environmental Policy Act*. Executive Office of the President. Washington, DC.

U.S. Environmental Protection Agency (EPA). 2016. *Promising Practices for (EJ) Methodologies in NEPA Reviews*. Report of the Federal Interagency Working Group. March 2016.

## 10.2.7 Socioeconomic Conditions

- California State University, Sacramento. (2022). *Homelessness in Sacramento County: Results from the 2022 Point-in-Time Count*. Sacramento, CA: Division of Social Work and the Center for Health Practice, Policy and Reserach. Prepared for Sacramento Steps Forward and Sacramento Continuum of Care.
- City of Sacramento. (2015). *Sacramento 2035 General Plan*. Sacramento, CA.
- City of Sacramento. (2021). *2021-2029 Housing Element*. Sacramento, CA.
- City of Sacramento. (2021). *City of Sacramento 2021-2029 Housing Element*.
- City of Sacramento. (2021). *Housing Element Appendix H-1 Community Profile*.
- Consumnes River College. (2022). *2022-2023 At a Glance*. Retrieved from Facts and Statistics: <https://crc.losrios.edu/why-crc/facts-and-statistics>
- County of Sacramento. (2019). *General Plan: Economic Development Element*. Office of Planning and Environmental Review.
- Cynthia Hubert. (2022, August 24). *Strong fall enrollment shows Sac State bucking wider trends as it prepares to welcome more than 31,000 students to campus*. Retrieved from Sacramento State Newsroom: <https://www.csus.edu/news/newsroom/stories/2022/8/grad-enrollment-rates.html>
- Department of Water Resources. (2022). *Sunset Weir and Pumps Fish Passage Project Alternative Evaluation Study*. Sacramento, CA: Prepared by Environmental Science Associates.
- Sacramento Area Council of Governments. (2020). *Regional Housing Needs Plan Cycle 6 2021-2029*.
- Sacramento City College. (2023). *Facts and Statistics*. Retrieved from <https://scc.losrios.edu/why-scc/facts-and-statistics>
- Sacramento County. (2008). *American River Parkway Plan 2008*. Sacramento, CA: County of Sacramento: Muncipal Services Agency: Planning and Community Development Department.
- Sacramento County. (2022). *Sacramento County Housing Element of 2021-2029*. Sacramento: Office of Planning and Environmental Review.
- Thomas, T., Driscoll, A., Picado Aguilar, G., Hartman, C., Greenberg, J., Ramiller, A., . . . Chapple, K. (2020). *Urban-displacement/displacement-typologies: Release 1:1*. Berkeley: University of California Berkeley.
- U.S. Census Bureau. (2020). *2020: DEC Redistricting Data (PL 94-171)*.

- U.S. Census Bureau. (2021). *2021 American Community Survey 1-Year Estimates*.
- U.S. Census Bureau. (2021). *2021 American Community Survey 5-Year Estimates*.
- U.S. Census Bureau. (2021). *2021: ACS 1-Year Estimates Data Profiles*.
- United States Census Bureau. (2020). *TIGER/Line with Selected Demographic and Economic Dat*. Retrieved from Census Mapping Files, American Community Survey 5-Year Estimates — Geodatabase Format 2016 - 2020 Detailed Tables:  
<https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.html>
- Urban Displacement Project. (2018). *SF Bay Area- Gentrification and Displacement Open Source Download*. Accessed March 28, 2023. Retrieved from [https://github.com/urban-displacement/displacement-typologies/blob/main/data/downloads\\_for\\_public/sanfrancisco.gpkg](https://github.com/urban-displacement/displacement-typologies/blob/main/data/downloads_for_public/sanfrancisco.gpkg)
- California State University, Sacramento. (2022). *Homelessness in Sacramento County: Results from the 2022 Point-in-Time Count*. Sacramento, CA: Division of Social Work and the Center for Health Practice, Policy and Reserach. Prepared for Sacramento Steps Forward and Sacramento Continuum of Care.
- City of Sacramento. (2015). *Sacramento 2035 General Plan*. Sacramento, CA.
- City of Sacramento. (2021). *2021-2029 Housing Element*. Sacramento, CA.
- City of Sacramento. (2021). *City of Sacramento 2021-2029 Housing Element*.
- City of Sacramento. (2021). *Housing Element Appendix H-1 Community Profile*.
- Consumnes River College. (2022). *2022-2023 At a Glance*. Retrieved from Facts and Statistics:  
<https://crc.losrios.edu/why-crc/facts-and-statistics>
- County of Sacramento. (2019). *General Plan: Economic Development Element*. Office of Planning and Environmental Review.
- Cynthia Hubert. (2022, August 24). *Strong fall enrollment shows Sac State bucking wider trends as it prepares to welcome more than 31,000 students to campus*. Retrieved from Sacramento State Newsroom: <https://www.csus.edu/news/newsroom/stories/2022/8/grad-enrollment-rates.html>
- Department of Water Resources. (2022). *Sunset Weir and Pumps Fish Passage Project Alternative Evaluation Study*. Sacramento, CA: Prepared by Environmental Science Associates.
- Sacramento Area Council of Governments. (2020). *Regional Housing Needs Plan Cycle 6 2021-2029*.

- Sacramento City College. (2023). *Facts and Statistics*. Retrieved from <https://scc.losrios.edu/why-scc/facts-and-statistics>
- Sacramento County. (2008). *American River Parkway Plan 2008*. Sacramento, CA: County of Sacramento: Municipal Services Agency: Planning and Community Development Department.
- Sacramento County. (2022). *Sacramento County Housing Element of 2021-2029*. Sacramento: Office of Planning and Environmental Review.
- Thomas, T., Driscoll, A., Picado Aguilar, G., Hartman, C., Greenberg, J., Ramiller, A., . . . Chapple, K. (2020). *Urban-displacement/displacement-typologies: Release 1:1*. Berkeley: University of California Berkeley.
- U.S. Census Bureau. (2020). *2020: DEC Redistricting Data (PL 94-171)*.
- U.S. Census Bureau. (2021). *2021 American Community Survey 1-Year Estimates*.
- U.S. Census Bureau. (2021). *2021 American Community Survey 5-Year Estimates*.
- U.S. Census Bureau. (2021). *2021: ACS 1-Year Estimates Data Profiles*.
- United States Census Bureau. (2020). *TIGER/Line with Selected Demographic and Economic Dat*. Retrieved from Census Mapping Files, American Community Survey 5-Year Estimates — Geodatabase Format 2016 - 2020 Detailed Tables: <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.html>
- Urban Displacement Project. (2018). *SF Bay Area- Gentrification and Displacement Open Source Download*. Accessed March 28, 2023. Retrieved from [https://github.com/urban-displacement/displacement-typologies/blob/main/data/downloads\\_for\\_public/sanfrancisco.gpkg](https://github.com/urban-displacement/displacement-typologies/blob/main/data/downloads_for_public/sanfrancisco.gpkg)

## 10.2.8 Hazards and Hazardous Materials

- AECOM Technical Services, Inc. 2016. *Ecological Sites Remedial Action Completion Report, Former McClellan Air Force Base*. Accessed 2/14/2023 at [https://documents.geotracker.waterboards.ca.gov/regulators/deliverable\\_documents/9517942130/Revised%20Final%20Ecological%20Sites%20Remedial%20Action%20Completion%20Report%20\(RACR\),%20former%20McClellan%20AFB%20\(Part%201%20of%202,%20Main%20Text,%20Appendices%20B-G\)%20539268.pdf](https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/9517942130/Revised%20Final%20Ecological%20Sites%20Remedial%20Action%20Completion%20Report%20(RACR),%20former%20McClellan%20AFB%20(Part%201%20of%202,%20Main%20Text,%20Appendices%20B-G)%20539268.pdf)
- California Department of Conservation, Division of Mines and Geology. 2000. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*. Accessed 2/12/2023 at <http://www.capcoa.org/Docs/noa/%5B28%5D%20USGS%20Location%20Guide%20Report%202000-19.pdf>

- California Department of Forestry and Fire Protection (Cal FIRE). 2022a. *Fire Hazard Severity Zones in State Responsibility Area – Sacramento County*. Accessed 4/25/2023 at [https://osfm.fire.ca.gov/media/2x4l31tk/fhsz\\_county\\_sra\\_11x17\\_2022\\_sacramento\\_ada.pdf](https://osfm.fire.ca.gov/media/2x4l31tk/fhsz_county_sra_11x17_2022_sacramento_ada.pdf)
- \_\_\_\_\_. 2022b. *Fire Hazard Severity Zones in State Responsibility Area – Yolo County*. Accessed 4/25/2023 at [https://osfm.fire.ca.gov/media/3qlkfaeq/fhsz\\_county\\_sra\\_11x17\\_2022\\_yolo\\_ada.pdf](https://osfm.fire.ca.gov/media/3qlkfaeq/fhsz_county_sra_11x17_2022_yolo_ada.pdf)
- California Department of Toxic Substances Control (DTSC). 2023. *Hazardous Waste and Substances Site List (Cortese)*. EnviroStore database accessed 2/11/2023 at <https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/>
- California Environmental Protection Agency. 2023a. *List of “Active” CDO and CAO from the Water Board*. Accessed 2/12/2023 at <https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CDOCAOList.xlsx>
- \_\_\_\_\_. 2023b. *List of Leaking Underground Storage Tank Sites from the State Water Board’s GeoTracker database*. Accessed 2/12/2023 at [https://geotracker.waterboards.ca.gov/search?CMD=search&case\\_number=&business\\_name=&main\\_street\\_name=&city=&zip=&county=&SITE\\_TYPE=LUFT&oilfield=&STATUS=&BRANCH=&MASTER\\_BASE=&Search=Search](https://geotracker.waterboards.ca.gov/search?CMD=search&case_number=&business_name=&main_street_name=&city=&zip=&county=&SITE_TYPE=LUFT&oilfield=&STATUS=&BRANCH=&MASTER_BASE=&Search=Search)
- County of Sacramento. 2021. *Sacramento County Multi-Jurisdictional Local Hazard Mitigation Plan Update*. Accessed 2/12/2023 at <https://waterresources.sacounty.gov/stormready/Documents/LHMP%202021/Executive%20Summary%20and%20TOC.pdf>
- Geosyntec. 2023 (April). *Supplemental Site Investigation Work Plan, Urrutia Site Restoration and Enhancement Project*.
- Kleinfelder. 2015 (November). *Phase I Environmental Site Assessment, BLT Property, Assessor Parcel Number 215-0244-027, Magpie Creek Floodplain Conservation Project, Sacramento, California*.
- Kleinfelder. 2017 (January). *Limited Phase II Site Assessment, Magpie Property, Magpie Creek Floodplain Conservation Project, Sacramento, California*.
- Kleinfelder. 2023a (January). *Phase I Environmental Site Assessment, Three Parcels of Urrutia Property, 599 Garden Highway, Sacramento, California*.
- Kleinfelder 2023b (April). *Report of Phase II Environmental Site Assessment and Additional Investigation, Three Parcels of Urrutia Property, 599 Garden Highway, Sacramento, California*.
- U.S. Army Corps of Engineers. 2020. *Phase I Environmental Site Assessment – Magpie Creek, for Approximately 1.64 Acres along the Northeast Side of Magpie Creek in Sacramento, Sacramento County, California*.

## 10.2.9 Geologic Resources

Robert Anderson, Mike Anderson, Tom Barry, Meredith Beswick, Chris Bonds, Mike Conway, Christopher Dennis, et al. 2018. Geology of Sacramento, California. Geology of the Cities of the World Series. Available:

<https://aeg.memberclicks.net/assets/docs/Cities%20of%20the%20World%20-%20Sacramento%20-%202018.pdf> Accessed: May 11, 2023.

Branum, D., R. Chen, M. Petersen, and C. Wills. 2016. Earthquake Shaking Potential for California. Available: <https://www.conservation.ca.gov/cgs/Pages/PSHA/shaking-assessment.aspx>. Accessed: May 10, 2023.

California Geological Survey (CGS). 1999. Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California. Accessed: May 11, 2023.

\_\_\_\_\_. 2015. Fault Activity Map of California. Available: <https://maps.conservation.ca.gov/cgs/fam/> Accessed: May 4, 2023.

\_\_\_\_\_. 2018. Mineral Land Classification Map of Concrete Aggregate in the Greater Sacramento Area Production-Consumption Region. Available: [https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Reports/SR\\_245-MLC-SacramentoPCR-2018-Plate01-a11y.pdf](https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Reports/SR_245-MLC-SacramentoPCR-2018-Plate01-a11y.pdf) Accessed: May 10, 2023.

\_\_\_\_\_. 2022a. Earthquake Zones of Required Investigation. Available: <https://maps.conservation.ca.gov/cgs/EQZApp/>. Accessed: May 10, 2023.

\_\_\_\_\_. 2022b. CGS Information Warehouse. Available: <https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatory> maps Accessed: May 4, 2023.

California Department of Conservation (DOC). 2000. Guidelines for Classification and Designation of Mineral Lands. Available: <https://www.conservation.ca.gov/smgb/guidelines/documents/classdesig.pdf> Accessed: May 11, 2023.

Fugro William Lettis & Associates, Inc. 2010 (October). Surficial Geologic Map and Initial Geomorphic Assessment, Sacramento River (East Side), Sacramento County, California. Prepared for URS Corporation, Sacramento, CA.

Hackel, O. 1966. Summary of the Geology of the Great Valley. In: Geology of Northern California. California Division of Mines and Geology Bulletin 190. San Francisco, California

Sacramento County. 2011. General Plan Conservation Element, Background to the 1993 General Plan as Amended. Available: <https://planning.saccounty.gov/LandUseRegulationDocuments/Documents/General-Plan/Conservation%20Element%20Background.pdf> Accessed: May 11, 2023.

Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee, 11 pp.

Wagner et al. 1981. Geologic Map of the Sacramento Quadrangle, California, 1:250,000. Available: [https://www.conservation.ca.gov/cgs/Documents/Publications/Regional-Geologic-Maps/RGM\\_001A/RGM\\_001A\\_Sacramento\\_1981\\_Sheet1of4.pdf](https://www.conservation.ca.gov/cgs/Documents/Publications/Regional-Geologic-Maps/RGM_001A/RGM_001A_Sacramento_1981_Sheet1of4.pdf) Accessed: May 11, 2023.

U.S. Army Corps of Engineers (USACE). 2000 (April). Design and Construction of Levees. EM 1110-2-1913. Washington, DC.

## 10.2.10 Hydraulics and Hydrology

California Department of Water Resources (DWR). 2020. *California's Groundwater Update 2020*. Accessed 2/13/2023 at [https://data.cnra.ca.gov/dataset/calgw\\_update2020/resource/d2b45d3c-52c0-45ba-b92a-fb3c90c1d4be](https://data.cnra.ca.gov/dataset/calgw_update2020/resource/d2b45d3c-52c0-45ba-b92a-fb3c90c1d4be)

City of Sacramento. 2015. 2035 General Plan, Environmental Resources. Accessed 2/27/2023 at <https://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/General-Plan/2035-GP/Environmental-Resources.pdf?la=en>

City of Sacramento and U.S. Bureau of Reclamation (BOR). 2019. Environmental Assessment/Initial Study and Proposed Mitigated Negative Declaration Lower American River Anadromous Fish Habitat Restoration Project. Available: <https://ceqanet.opr.ca.gov/2019069088/2>. Accessed April 25, 2022.

County of Sacramento. Amended 2017a. County of Sacramento General Plan, Conservation Element. Accessed 2/27/2023 at <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Conservation%20Element%20-%20Amended%2009-26-17.pdf>

\_\_\_\_\_. Amended 2017b. County of Sacramento General Plan, Delta Protection Element. Accessed 3/23/2023 at <https://planning.saccounty.gov/LandUseRegulationDocuments/Documents/General-Plan/Delta%20Protection%20Element%20Amended%20-%2009-26-17.pdf#:~:text=This%20Delta%20Protection%20Element%20%28DP%20Element%29%20is%20based,policy%20is%20the%20County%E2%80%99s%20and%20not%20the%20DPC%E2%80%99s.>

Federal Emergency Management Agency (FEMA). 2023. *National Flood Hazard Layer*. Accessed 2/14/2023 at <https://msc.fema.gov/portal/home>

Pasternack, G. B., Wang, C. L., and Merz, J. 2004. Application of a 2D hydrodynamic model to reach-scale spawning gravel replenishment in the lower Mokelumne River, California. *River Research and Applications* 20: 2: 205-225. <https://doi.org/10.1002/rra.748>.

## 10.2.11 Water Quality

- California Environmental Protection Agency (CalEPA), State Water Resources Control Board (SWRCB). 2022. *2020 – 2022 Integrated Report for Clean Water Act Sections 303(d) and 305(b)*. Accessed 2/1/2023 at [https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/2020\\_2022state\\_ir\\_reports\\_revised\\_final/2020-2022-integrated-report-final-staff-report.pdf](https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_revised_final/2020-2022-integrated-report-final-staff-report.pdf)
- California Regional Water Quality Control Board, Central Valley Region (CVRWQCB). 2019. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region – The Sacramento River Basin and The San Joaquin River Basin. Accessed 2/1/2023 at [https://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr\\_201902.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201902.pdf)
- California Regional Water Quality Control Board, Central Valley Region. 2010. “Groundwater Quality Protection Strategy: A ‘Roadmap’ for the Central Valley Region,” August 2010, [https://www.waterboards.ca.gov/centralvalley/water\\_issues/groundwater\\_quality/2010aug\\_gwq\\_protect\\_strat\\_approved.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/groundwater_quality/2010aug_gwq_protect_strat_approved.pdf).
- California Department of Water Resources (DWR). 2020. Final Environmental Impact Report. Lookout Slough Tidal Habitat Restoration and Flood Improvement Project. Available: [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Environmental-Services/Restoration-Mitigation-Compliance/Files/Lookout-Slough-FEIR\\_DES\\_v1\\_11032020\\_ay11.pdf](chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Environmental-Services/Restoration-Mitigation-Compliance/Files/Lookout-Slough-FEIR_DES_v1_11032020_ay11.pdf)
- Central Valley Project Improvement Act (CVPIA). 1999. Final Programmatic Environmental Impact Statement. October 1999. Available: <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.usbr.gov/mp/cvpia/docs-reports/docs/final-peis-10-1999.pdf>. Accessed: 7/12/2023.
- City of Sacramento. 2015. 2035 General Plan, Environmental Resources. Accessed 2/27/2023 at <https://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/General-Plan/2035-GP/Environmental-Resources.pdf?la=en>
- County of Sacramento. Amended 2017. County of Sacramento General Plan, Conservation Element. Accessed 2/27/2023 at <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Conservation%20Element%20-%20Amended%2009-26-17.pdf>
- Delta Stewardship Council. 2019. The Delta Plan. Available: <https://deltacouncil.ca.gov/delta-plan/>. Accessed: 09/21/2023.
- Enright, C., and S. D. Culberson. 2009. Salinity trends, variability, and control in the northern reach of the San Francisco Estuary. *San Francisco Estuary and Watershed Science*, 7(2). <http://escholarship.org/uc/item/0d52737t>. Accessed October 2019.

Kleinfelder. 2017 (January). *Limited Phase II Site Assessment, Magpie Property, Magpie Creek Floodplain Conservation Project, Sacramento, California.*

Lehman, P.W., Boyer, G., Satchwell, M. and Waller, S., 2008. The influence of environmental conditions on the seasonal variation of Microcystis cell density and microcystins concentration in the San Francisco Estuary. *Hydrobiologia*, 600(1), pp. 187-204.

State Water Resources Control Board (SWRCB). 2018. Water Quality Control Plan for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary. Accessed 2/26/23 at [https://www.waterboards.ca.gov/plans\\_policies/docs/2018wqcp.pdf](https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf)

State Water Resources Control Board (SWRCB). 2022. *2020-2022 Integrated Report*. Accessed 2/26/23. Available at: [https://www.waterboards.ca.gov/water\\_issues/programs/water\\_quality\\_assessment/2020\\_2022\\_integrated\\_report.html](https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html)

### **10.2.12 Air Quality**

California Environmental Protection Agency (CalEPA) Air Resources Board. 2002. Implementation Guidance Document for the Asbestos Airborne Toxic Contract Measure for Surfacing Applications. Available: <https://ww2.arb.ca.gov/sites/default/files/classic/toxics/asbestos/atcm/asbpl1gd.pdf>. Accessed: 5/20/2024.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020. Guide to Air Quality Assessment in Sacramento County. Last updated April 2020. Available: <https://www.airquality.org/LandUseTransportation/Documents/Ch1IntroAq4-25-2020.pdf> Accessed: February 28, 2023.

Sacramento Metropolitan Air Quality Management District. 2020 (September) Mobile Source Air Toxics Protocol Guidance Document. Available: <http://www.airquality.org/LandUseTransportation/Documents/FinalMSATProtocolGuidancev1.3Sept2020.pdf>. Accessed August 8, 2022.

U.S. Environmental Protection Agency. 2022. Greenbook 8-Hour Ozone (2015) Designated Area (State/Area/County Report). Last updated July 31, 2022. Available: <https://www3.epa.gov/airquality/greenbook/jbcs.html#CA>. Accessed February 28, 2023.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Guidance Manual for Preparation of Health Risk Assessments. Available: <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf> Accessed: April 3, 2023

### **10.2.13 Greenhouse Gas Emissions and Energy Consumption**

California Air and Resource Board (CARB). 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Available: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf> Accessed: May 16, 2023.

- California Natural Resources Agency (CNRA). 2018. 2018 Safeguarding California Plan, California's Climate Adaptation Strategy. Available: <https://resources.ca.gov/CNRALegacyFiles/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf> Accessed: May 16, 2023.
- \_\_\_\_\_. 2009. 2009 California Climate Adaptation Strategy. Available: [https://resources.ca.gov/CNRALegacyFiles/docs/climate/Statewide\\_Adaptation\\_Strategy.pdf](https://resources.ca.gov/CNRALegacyFiles/docs/climate/Statewide_Adaptation_Strategy.pdf) Accessed: May 26, 2023.
- California Energy Commission (CEC). 2022. Total System Electric Generation. Available : <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation>. Accessed February 24, 2023
- Council of Environmental Quality (CEQ). 2023. GHG Tools and Resources. Available: <https://ceq.doe.gov/guidance/ghg-tools-and-resources.html>. Accessed November 16, 2023.
- City of Sacramento. 2022. Climate Action and Adaptation Plan. Adopted July 1. 2022. Available: [http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Major-Projects/18-06051\\_Sac-CAAP\\_PreliminaryDraft\\_062922.pdf?la=en](http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Major-Projects/18-06051_Sac-CAAP_PreliminaryDraft_062922.pdf?la=en). Accessed: February 22, 2023.
- IWG (U.S. Interagency Working Group on Social Cost of Greenhouse Gases). 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. Available: [https://www.whitehouse.gov/wpcontent/uploads/2021/02/TechnicalSupportDocument\\_SocialCostofCarbonMethaneNitrousOxide.pdf](https://www.whitehouse.gov/wpcontent/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf). Accessed: November 16, 2023.
- Sacramento County. 2022. Climate Action Plan. Adopted August 22, 2022. Available: <https://planning.saccounty.net/PlansandProjectsIn-Progress/Documents/Climate%20Action%20Plan/Final%20Climate%20Action%20Plan.pdf> Accessed: February 22, 2023.
- Sacramento Metropolitan Utility District (SMUD). 2021. 2021 Power Content Label. Available: <https://www.smud.org/SMUDPCL>. Accessed February 27, 2023.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2021 (February). Greenhouse Gas Emissions. Available: <http://www.airquality.org/LandUseTransportation/Documents/Ch6GHG2-26-2021.pdf>. Accessed February 27, 2023.
- State of California. 2022. California Climate Commitment. Available: <https://www.gov.ca.gov/wp-content/uploads/2022/09/Fact-Sheet-California-Climate-Commitment.pdf> Accessed: May 26, 2023.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2023. Grand Staircase-Escalante National Monument Draft Resource Management Plan and associated Draft Environmental Impact Statement. Section 3.1.2 pages (3)22-25. Available:

<https://eplanning.blm.gov/eplanning-ui/project/2020343/510>. Accessed November 16, 2023.

## 10.2.14 Noise and Vibration

California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual. Available: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf> Accessed: February 21, 2023.

City of Sacramento. 2022. Sacramento City Code, Title 8 Health and Safety, Chapter 8.69 Noise Control, Section 8.68.080 Exemptions. Available: [https://library.qcode.us/lib/sacramento\\_ca/pub/city\\_code/item/title\\_8-chapter\\_8\\_68-article\\_ii-8\\_68\\_080](https://library.qcode.us/lib/sacramento_ca/pub/city_code/item/title_8-chapter_8_68-article_ii-8_68_080) Accessed: May 26, 2023.

\_\_\_\_\_. 2015. City of Sacramento 2035 General Plan, Environmental Constraints Element. Adopted March 3, 2015. Available: <http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/General-Plan/2035-GP/Environmental-Constraints.pdf?la=en> Accessed: February 21, 2023.

County of Sacramento. 2022. Sacramento County Code, Title 6 Health and Sanitation, Chapter 6.68 Noise Control, Section 6.68.090 Exemptions. Available: [http://library.qcode.us/lib/sacramento\\_county\\_ca/pub/county\\_code/item/title\\_6-chapter\\_6\\_68-6\\_68\\_090](http://library.qcode.us/lib/sacramento_county_ca/pub/county_code/item/title_6-chapter_6_68-6_68_090) Accessed: May 26, 2023.

U.S. Environmental Protection Agency (EPA). 1974. EPA Identifies Noise Levels Affecting Health and Welfare. Available: <https://www.epa.gov/archive/epa/aboutepa/epa-identifies-noise-levels-affecting-health-and-welfare.html> Accessed: February 21, 2023.

Federal Transit Authority (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September 2018. Available: [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf) Accessed: March 6, 2023.

## 10.2.15 Vegetation and Wildlife

Anderson, M. and Clark, M., 2012. Modeling landscape permeability: A description of two methods to model landscape permeability. The Nature Conservancy-Eastern Conservation Science. Boston, MA.

California Wildlife Connectivity and Climate Adaptation Act of 2024. California AB2320: 2023-2024: Regular Session.

California Department of Fish and Wildlife (CDFW). 2022. *California Sensitive Natural Communities*. Updated: July 05, 2022. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline>>. Accessed: March 16, 2023.

- California Department of Fish and Wildlife. (2024). Areas of Conservation Emphasis (ACE), version 3.2.1. Retrieved from [https://wildlife.ca.gov/Data/Analysis/ACE\[1\]](https://wildlife.ca.gov/Data/Analysis/ACE[1])
- Coast Ridge Ecology. 2021. *Results of Pre-construction Biological Survey of Grand Island DMPS (S14)*. Prepared for Sacramento River Dredging Project, Sacramento County, California. September 22, 2021.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31, 131p.
- Environmental Science Associates. October 2020. Revised Draft American River Common Features 2016 Project, American River Erosion Protection, American River Contract 3 Detailed Resource Assessment Report: Sacramento, CA.
- Fischer, J. and Lindenmayer, D.B., 2007. Landscape modification and habitat fragmentation: a synthesis. *Global ecology and biogeography*, 16(3), pp.265-280.
- GEI Consultants. 2020. *Biological Resources Reconnaissance Assessment for the Magpie Creek Diversion Channel Project*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- Golet, G.H., Gardali, T., Howell, C.A., Hunt, J., Luster, R.A., Rainey, W., Roberts, M.D., Silveira, J., Swagerty, H. and Williams, N., 2008. Wildlife response to riparian restoration on the Sacramento River. *San Francisco Estuary and Watershed Science*, 6(2).
- HDR. 2022. *Tree Survey and Vegetation Assessment Results of the Urrutia Property Boundary*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- ICF. 2018. *Magpie Creek Floodplain Conservation Project Mitigated Negative Declaration and Initial Study*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- Mayer, K. and W. Laudenslayer, Jr. 1988. *A Guide to Wildlife Habitats of California*. State of California, Resources Agency, Department of Fish and Game. Sacramento, CA. 166 pp.
- Nature Conservancy, The. (2023). Resilient Land Mapping Tool. Retrieved from <https://maps.tnc.org/resilientland/>
- Sacramento Area Flood Control Agency (SAFCA). 2021. *Magpie Creek Floodplain Conservation Project Grant Deed Easement*. Sacramento, CA.
- Sacramento County. 2023. *Natural Resources Management*. Available: <https://regionalparks.saccounty.gov/Parks/Pages/NaturalResourcesManagement.aspx>. Accessed May 1, 2023.
- Sacramento County. 2017. Sacramento County General Plan of 2005-2030. Adopted November 9, 2011. Conservation Element Amended 2017. Community Planning and Development Department. Sacramento, CA. Available: <https://planning.saccounty.gov/LandUseRegulationDocuments/Documents/General->

Plan/Conservation%20Element%20-%20Amended%2009-26-17.pdf . Accessed: May 2, 2023.

Sacramento County. 2008. *American River Parkway Plan*. Available: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/AmericanRiverParkwayPlan.pdf>. Accessed December 6, 2021.

The Wildlife Society. 2023. Urban Wildlife Finds Different Strategies to Survive City Life. Available at: <https://wildlife.org/urban-wildlife-finds-different-strategies-to-survive-city-life/>

U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. Available at: [https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines\\_0.pdf](https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf)

## 10.2.16 Aquatic Resources and Fisheries

Bureau of Ocean Energy Management (BOEM). No Date (ND). *Magnuson-Stevens Fishery and Conservation Management Act*. Available: <https://www.boem.gov/environment/environmental-assessment/magnuson-stevens-fishery-conservation-and-management-act>. Accessed February 17, 2023.

Central Valley Regional Water Quality Control Board (CVRWQCB). 2021 (July). *Clean Water Act Section 401 Water Quality Certification and Order, American River Common Features Project*. Available: [https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/401\\_wqcerts/5A34CR00819.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/401_wqcerts/5A34CR00819.pdf). Accessed March 7, 2023.

City of Sacramento. 2015. 2035 General Plan: Environmental Resources. Available at: <http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/General-Plan/2035-GP/Environmental-Resources.pdf?la=en>. Accessed February 16, 2023.

County of Sacramento. 2008. *American River Parkway Plan 2008*. Available: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/AmericanRiverParkwayPlan.pdf>. Accessed February 16, 2023.

\_\_\_\_\_. 2017a. *General Plan: Conservation Element*. Available at: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Conservation%20Element%20-%20Amended%2009-26-17.pdf>. Accessed February 16, 2023.

\_\_\_\_\_. 2017b. *General Plan: Open Space Element*. Available: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Open%20Space%20Element%20-%20Amended%2009-26-17.pdf>. Accessed February 16, 2023.

- GEI, 2019. "Biological Resources Technical Report for the Lower American River Spawning Gravel Augmentation and Habitat Improvement Project." Addressed to SAFCA c/o Dan Tibbitts, March 25, 2019.
- Hannon, J. 2013. *American River Steelhead (Oncorhynchus mykiss) Spawning—2013, with comparisons to prior years*. Central Valley Project, American River, California Mid-Pacific Region. Bureau of Reclamation. Sacramento, CA. 32 p.
- Healey, M. and J. Redding. 2008. *Lower American River Chinook salmon escapement survey October 2007-January 2008*. Department of Fish and Game, Preliminary Technical Report.
- ICF. 2018. *Magpie Creek Floodplain Conservation Project: Mitigated Negative Declaration and Initial Study*. Prepared for Sacramento Area Flood Control Agency.
- National Wild and Scenic Rivers System. No Date (ND). *About the WSR Act*. Available: <https://www.rivers.gov/wsr-act.php>. Accessed February 16, 2023.
- National Marine Fisheries Service (NMFS). 2009. Biological opinion and conference opinion on the long-term operations of the Central Valley Project and State Water Project. June 4, 2009. Southwest Region, Long Beach, CA.
- National Oceanic and Atmospheric Administration (NOAA). 2022. *Glossary: Endangered Species Act*. Available: <https://www.fisheries.noaa.gov/laws-and-policies/glossary-endangered-species-act>. Accessed August 30, 2023.
- Pacific States Marine Fisheries Commission (PSMFC). 2014a. *Juvenile salmonid emigration monitoring in the Lower American River, California, January-May 2014*. Report prepared for the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. Sacramento, California. 112 p.
- \_\_\_\_\_. *California, January-June 2013*. Report prepared for the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. Sacramento, California. 54 p.
- Snider, B. and R.G. Titus. 2000. *Lower American River emigration survey. October 1996-September 1997*. California Department of Fish and Game Stream Evaluation Program Technical Report 00-2. 64 p.
- \_\_\_\_\_. 2001. *Lower American River emigration survey. October 1997-September 1998*. California Department of Fish and Game Stream Evaluation Program Technical Report 01-6. 68 p.
- Snider, B., R.G. Titus, and B.A. Payne. 1998. *Lower American River emigration survey, October 1995-September 1996*. Report prepared by California Department of Fish and Game Stream Flow and Habitat Evaluation Program. 60 p.
- USACE. 2016. *American River Watershed Common Features General Reevaluation Report: Final Environmental Impact Statement, Environmental Impact Report*. December 2015.

\_\_\_\_\_. 2023. *Draft Programmatic Biological Assessment for the American River Common Features, Sacramento, California*. Submitted to NMFS.

U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. Available: [[https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines\\_0.pdf](https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf)]. Accessed: June 2, 2023.

\_\_\_\_\_. 2015 (October). Fish and Wildlife Coordination Act Report, American River Common Features General Re-Evaluation Report Project. Available: [[https://www.spk.usace.army.mil/Portals/12/documents/civil\\_works/CommonFeatures/W\\_RDA16/Documents/ARCF\\_Fish-and-Wildlife-Coordination-Act-Report\\_5OCT15.pdf?ver=5q7LU7Ux0NbBvfn\\_mu\\_qnQ%3d%3d](https://www.spk.usace.army.mil/Portals/12/documents/civil_works/CommonFeatures/W_RDA16/Documents/ARCF_Fish-and-Wildlife-Coordination-Act-Report_5OCT15.pdf?ver=5q7LU7Ux0NbBvfn_mu_qnQ%3d%3d)]. Accessed: March 7, 2023.

Williams, J.G., J.J. Anderson, S. Greene, C. Hanson, S.T. Lindley, A. Low, B.P. May, D. McEwan, M.S. Mohr, R.B. MacFarlane, and C. Swanson. 2007. *Monitoring and Research Needed to Manage the Recovery of Threatened and Endangered Chinook and Steelhead in the Sacramento-San Joaquin Basin*. NOAA Tech Memo NMFS-SWFSC-399 (2007).

## 10.2.17 Special Status Species

Anderson, M. G; D. E. Walling, and P.D. Bates (Editors). 1996. *Floodplain Processes* (Chichester, United Kingdom: Wiley). ISBN: 978-0-471-96679-1.

Beedy, E. C. , W. J. Hamilton, III, R. J. Meese, D. A. Airola, and P. Pyle. and W. J. Hamilton, III. 2018. Tricolored blackbird (*Agelaius tricolor*). In: A. Poole (ed.), *The Birds of North America Online*. Cornell Lab of Ornithology. Ithaca, NY. Available: <<https://doi.org/10.2173/bna.tribla.03.1>>. Accessed: May 2009/January 2019.

California Department of Fish and Game (CDFG). 1995. *A guide to wetland habitat management in the Central Valley*. Department of Fish and Game.

California Department of Fish and Game (CDFG). 1999a. *California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow*.

California Department of Fish and Game (CDFG). 1999b. *California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Black Rail*.

California Department of Fish and Game (CDFG). 2000. *Western Pond Turtle*. Species account written by S. Morey, updated by California Wildlife Habitat Relationships System staff October 2000. Species & Vegetation—Species Explorer. Available: <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2657&inline=1>>. Accessed: January 25, 2019.

California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*. Available at [<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>]. Accessed May 31, 2023.

- California Department of Fish and Wildlife (CDFW). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. Available at [<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>]. Accessed May 31, 2023.
- California Department of Fish and Wildlife (CDFW). 2023. *Results of electronic database search for sensitive species occurrences*. Version 5. Biogeographic Data Branch. Available at [<https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>]. Accessed February 17, 2023.
- California Department of Fish and Wildlife (CDFW). 2023. *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. June 6, 2023.
- California Department of Fish and Wildlife (CDFW). No Date. *Anthicus antiochensis*. California Department of Fish and Game Natural Diversity Database. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=107584>
- California Native Plant Society (CNPS). 2023. *Inventory of Rare and Endangered Plants. Online edition*, v8-03 0.38. Sacramento, CA. Available at <http://www.rareplants.cnps.org>. Accessed February 17, 2023.
- Chandler, D.S. 1978. *A new Anthicus from California (Coleoptera: Anthicidae)*. Pan-Pacific Entomologist 54:15. San Francisco, CA.
- Coast Ridge Ecology. 2021. *Results of Pre-construction Biological Survey of Grand Island DMPS (S14)*. For Sacramento River Dredging Project, Sacramento County, California. September 22, 2021.
- Davis, M.G. 1991. *Aspects of the ecology of Anthicus Sacramento Chandler and Anthicus antiochensis Werner (Coleoptera: Anthicidae)*. Master of Science thesis, Sacramento State University, 113 pp. Available at: [<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=107584>].
- Department of Defense Partners in Amphibian and Reptile Conservation (DDPARC). 2020. *Recommended Best Management Practices for the Western Pond Turtle on Department of Defense Installations*. Department of Defense Legacy Resource Management Program. Available at: [[https://www.denix.osd.mil/dodparc/denix-files/sites/36/2021/01/Pond-Turtles-BMP\\_Final\\_508\\_v2.pdf](https://www.denix.osd.mil/dodparc/denix-files/sites/36/2021/01/Pond-Turtles-BMP_Final_508_v2.pdf)]. Accessed May 31, 2023.
- eBird. 2023. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: <http://www.ebird.org>. (Accessed: Date [e.g., August 3, 2023]).
- Environmental Science Associates. 2018. *Lower American River Subreach 2 Draft Final Resource Assessment*. Sacramento, CA.

- Environmental Science Associates. 2021. *Wildlife Habitat Survey Report: American River Common Features Project American River Contracts 3A and 4A*. Prepared for Sacramento Area Flood Control Agency.
- Environmental Science Associates. 2022. *American River Common Features Project American River Contracts 3 and 4 Special-Status Plant Survey Report*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- GEI Consultants. 2020. *Biological Resources Reconnaissance Assessment for the Magpie Creek Diversion Channel Project*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- GEI Consultants. 2023a. *Biological Resources Reconnaissance Assessment for the Magpie Creek Project – American River Common Features*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- GEI Consultants. 2023b. *Sacramento River Mitigation Site at Grand Island Planning-level Biological Survey*. Sacramento, CA.
- Halstead, B. J., G. D. Wylie, and M. L. Casazza. 2014. *Ghost of Habitat Past: Historic Habitat Affects the Contemporary Distribution of Giant Garter Snakes in a Modified Landscape*. *Animal Conservation* 17(2):144–153.
- HDR. 2023. *Design Documentation Report American River Mitigation Site Habitat Enhancement and Restoration Project*. Sacramento, CA.
- ICF. 2018. *Magpie Creek Floodplain Conservation Project Mitigated Negative Declaration and Initial Study*. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA.
- iNaturalist contributors, iNaturalist. 2023a. *iNaturalist Research-grade Observations*. *iNaturalist.org*. Occurrence dataset <https://doi.org/10.15468/ab3s5x> accessed via GBIF.org on 2023-03-07. <https://www.gbif.org/occurrence/3301800346>
- iNaturalist contributors, iNaturalist. 2023b. *iNaturalist Research-grade Observations*. *iNaturalist.org*. Occurrence dataset <https://doi.org/10.15468/ab3s5x> accessed via GBIF.org on 2023-03-07. <https://www.gbif.org/occurrence/3966527021>
- Jennings, M. R. and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report. California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, CA.
- Journey North. 2023. “Maps”. Available: <https://maps.journeynorth.org/map/?year=2023&map=monarch-adult-first>
- National Marine Fisheries Service (NMFS). 2021. *Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the American River Common Features General Reevaluation Report Reinitiation*.

- Meese, R. 2006. *Settlement and Breeding Colony Characteristics of Tricolored Blackbirds in 2006 in the Central Valley*. Final report. Davis, CA. Prepared for the U.S. Fish and Wildlife Service and Audubon California.
- Sacramento Regional County Sanitation District (SRCSD). 2014 (March). *Draft Environmental Impact Report for the Sacramento Regional County Sanitation District EchoWater Project*. State Clearinghouse No. 2012052017. Prepared by Ascent Environmental, Sacramento, CA. Available: [<http://www.regionalsan.com/post/echowater-draft-environmental-impact-report-deir>]. Accessed February 17, 2023.
- Serra-Llobet, A., Jähnig, S.C., Geist, J., Kondolf, G.M., Damm, C., Scholz, M., Lund, J., Opperman, J.J., Yarnell, S.M., Pawley, A. and Shader, E., 2022. Restoring rivers and floodplains for habitat and flood risk reduction: experiences in multi-benefit floodplain management from California and Germany. *Frontiers in Environmental Science*, 9, p.778568.
- Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83991>
- Talley, T. S., D. Wright, and M. Holyoak. 2006. *Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus) 5-Year Review: Summary and Evaluation*. Prepared for U. S. Fish and Wildlife Service, Sacramento Office, Sacramento, California.
- U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration (USFWS & NMFS). 2019. *Endangered and Threatened Wildlife and Plants; Regulations for Interagency Cooperation*. 84 Federal Register 44976, August 27, 2019.
- U.S. Fish and Wildlife Service (USFWS). 1992. *Proposal to Determine Endangered Status for Four Fairy Shrimp and the Vernal Pool Tadpole Shrimp in California*. Federal Register Vol. 57, No.90, pages 19856-19862. Available [<https://www.fws.gov/species-publication-action/etwp-proposal-determine-endangered-status-four-fairy-shrimp-and-vernal-0>]. Accessed February 23, 2023.
- U.S. Fish and Wildlife Service (USFWS). 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Sacramento, California.
- U.S. Fish and Wildlife Service (USFWS). 2001. *Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition to List the Yellow-Billed Cuckoo (Coccyzus americanus) in the Western Continental United States*. Federal Register 66:38611–38626, July 25, 2001.
- U.S. Fish and Wildlife Service (USFWS). 2015. *Revised Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*. U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 64 pp.
- U.S. Fish and Wildlife Service (USFWS). 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*. Sacramento, CA.

- U.S. Fish and Wildlife Service (USFWS). 2019. *Survey Protocols for the Rusty Patched Bumble Bee (Bombus affinis)* Version 2.2. Available: [https://www.fws.gov/sites/default/files/documents/Survey\\_Protocols\\_RPBB\\_12April2019.pdf](https://www.fws.gov/sites/default/files/documents/Survey_Protocols_RPBB_12April2019.pdf)
- U.S. Fish and Wildlife Service (USFWS). 2020. *California clapper rail (Rallus longirostris obsoletus) 5-Year Review*. Available: <https://www.fws.gov/node/261554>
- U.S. Fish and Wildlife Service (USFWS). 2021. *Reinitiation of Formal Consultation on the American River Common Features (ARCF) 2016 Project, Sacramento and Yolo Counties, California*. Sacramento Fish and Wildlife Office, Sacramento, CA.
- U.S. Fish and Wildlife Service (USFWS). 2023a. *Information for Planning and Consultation (IPaC) List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project*. Available: [<https://ipac.ecosphere.fws.gov/>].
- U.S. Fish and Wildlife Service (USFWS). 2023b. *Giant Garter Snake* Available: [<https://www.fws.gov/species/giant-garter-snake-thamnophis-gigas>]. Accessed November 7, 2023.
- Xerces Society, The. 2018. *Managing for Monarchs in the West: Best Management Practices for Conserving the Monarch Butterfly and its Habitat*. 106+vi pp. Portland, OR: The Xerces Society for Invertebrate Conservation. (Available online at [www.xerces.org](http://www.xerces.org)).

## 10.2.18 Cultural Resources

- Levy, Richard. 1978. *Eastern Miwok*. Handbook of North American Indians, Robert F. Heizer, editor, Vol. 8, pp. 485-495. Washington, D.C. Smithsonian Institution.
- Ross, Douglas. 2018. *Archaeological Investigations at the Grand Island Erosion Repair Project Sacramento County, California*. Prepared for Stillwater Sciences by Albion Environmental, Inc. Report on file at U.S. Army Corps of Engineers, Sacramento