Final

AMERICAN RIVER WATERSHED COMMON FEATURES, WATER RESOURCES DEVELOPMENT ACT OF 2016, AMERICAN RIVER CONTRACT 1

Supplemental Environmental Assessment/ Supplemental Environmental Impact Report

State Clearinghouse Number 2005072046

Prepared for
U.S. Army Corps of Engineers
Central Valley Flood Protection Board
Sacramento Area Flood Control Agency

March 2021

ESA

US Army Corps of Engineers®

CENTRAL VALLEY FLOOD PROTECTION BOARD
PUBLIC SAFETY
FLOOD RISK REDUCTION
STATE OF CALIFORNIA

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EXECUTIVE SUMMARY

ES.1 Summary of the Proposed Action

The Proposed Action includes the installation of erosion protection features along the Lower American River in the project area for the American River Watershed Common Features (ARCF), Water Resources Development Act of 2016 Project, American River Contract 1. The erosion protection features of the Proposed Action were analyzed in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This Supplemental Environmental Assessment/Environmental Impact Report (EA/EIR) supplements the ARCF GRR Final EIS/EIR.

Some elements of the Proposed Action (e.g., staging areas, haul routes, project footprint, vegetation removal) were not analyzed in the ARCF GRR Final EIS/EIR, because the project design had not been conducted to provide the specificity required for project implementation. Through project design and refinement, the U.S. Army Corps of Engineers (USACE) has identified potential staging areas, haul routes, the project footprint, vegetation removal activities, mitigation areas, and transportation effects, as well as specific erosion protection features and locations.

ES.2 Summary of Environmental Consequences

Table ES-1 summarizes the effects analysis, provided in detail in Sections 3.2 through 3.14 of this Supplemental EA/EIR. This summary provides effect titles, significance conclusions before and after implementation of mitigation, and mitigation measures.

ES.3 Areas of Controversy and Issues to Be Resolved

The ARCF GRR Final EIS/EIR identified several areas of controversy based on the comments received during the public scoping period and the history of the National Environmental Policy Act and California Environmental Quality Act processes undertaken by USACE, the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency. Several of these areas of controversy are applicable to the Proposed Action:

- Construction-related effects on residents and businesses adjacent to the project levees.
- Construction-related impacts on biological resources.

- Vegetation and tree removal.
- Effects on cultural resources and resources significant to Native American tribes.
- Impacts on recreation facilities.
- Impacts on endangered species and their habitat.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.2 Visual Resources			
Result in Short-Term Impacts on the Visual Character of the American River Parkway During Construction	S	None	SU
Result in a Loss of Vegetation Due to Removal and Construction of Levee Improvements Resulting in Short-Term Effects on Visual Resources of Mature Vegetation	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
Result in Long-Term Adverse Impact on Visual Resources to Users Within the American River Parkway	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	S	**Mitigation Measure VIS-1:** Shield Temporary Nighttime Lighting.	LTS
3.3 Hydrology and Water Quality			
Result in Changes to the Levee Footprint, In-Channel Geometry or Characteristics, River Hydraulics, and/or Impede or Redirect Flood Flows	LTS	None	LTS
Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Groundwater Quality, Result in Substantial Erosion or Siltation on- or off-site, or Conflict with or Obstruct Implementation of a Water Quality Control Plan.	S	Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat. Mitigation Measure WQ-1: Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices.	LTS
3.4 Vegetation and Wildlife			
Result in Short-Term Adverse Effects on Riparian Habitat and Waters of the United States	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	SU
Result in Long-Term Adverse Effects on Riparian Habitat and Waters of the United States	S	Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal. Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS

LTS = less than significant; S = significant; SU = significant and unavoidable.

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.5 Fisheries			
Adverse Effects on Fisheries Resources	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination.	LTS
3.6 Special Status Species			
Adverse Effect on Special Status Species: Valley Elderberry Longhorn Beetle	S	Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle.	LTS
Adverse Effect on Special Status Species: Western Yellow-Billed Cuckoo	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.	LTS
Adverse Effect on Special Status Species: Swainson's Hawk	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.	LTS
Adverse Effect on Special Status Species: Bank Swallow	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
Adverse Effect on Special Status Species: Crotch Bumble Bee	S	Mitigation Measure BEE-1: Implement Measures to Avoid and Minimize Effects on Crotch Bumble Bee.	LTS
Adverse Effect on Special Status Species: Burrowing Owl	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
Adverse Effect on Special Status Species: White-Tailed Kite	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site. Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.	LTS
Adverse Effect on Special Status Species: Purple Martin	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
Adverse Effect on Special Status Species: Cooper's Hawk	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
Adverse Effect on Special Status Species: Other Breeding and Migratory Birds	S	Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.	LTS
Adverse Effect on Special Status Species: Western Pond Turtle	S	Mitigation Measure TURTLE-1: Implement Measures to Avoid and Minimize Effects on Western Pond Turtle. Mitigation Measure WQ-1: Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices.	LTS
Adverse Effect on Special Status Species: Pallid Bat	S	Mitigation Measure BATS-1: Implement Measures to Protect Maternity Roosts of Special Status Bats.	LTS

LTS = less than significant; S = significant; SU = significant and unavoidable.

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.6 Special Status Species (cont.)			
Adverse Effect on Special Status Species: Western Red Bat	S	Mitigation Measure BATS-1: Implement Measures to Protect Maternity Roosts of Special Status Bats.	LTS
Adverse Effect on Special Status Species: American Badger	S	Mitigation Measure BADGER-1: Implement Measures to Avoid and Minimize Effects on American Badger.	LTS
Adverse Effect on Special Status Species: Sanford's Arrowhead	S	Mitigation Measure PLANT-1: Implement Measures to Avoid and Minimize Effects on Special Status Plants.	LTS
Adverse Effect on Special Status Species: Winter-Run Chinook Salmon	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
Adverse Effect on Special Status Species: Spring-Run Chinook Salmon	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
Adverse Effect on Special Status Species: Central Valley Fall/Late Fall-Run Chinook Salmon	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
Adverse Effect on Special Status Species: California Central Valley Steelhead	S	Mitigation Measure FISH-1: Observe In-Water Work Windows. Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	LTS
Adverse Effect on Special Status Species: Green Sturgeon	LTS	None	LTS

LTS = less than significant; S = significant; SU = significant and unavoidable.

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.7 Cultural Resources			
Damage to or Destruction of Unknown or Subsurface Historic-Period Sites, Prehistoric-Period Archaeological Sites, and Native American Identified Tribal Cultural Resources	S	Mitigation Measure CR-1: Resolve Adverse Effects through a Programmatic Agreement and Historic Properties Treatment Plan. Mitigation Measure CR-2: Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan. Mitigation Measure CR-3: Conduct Cultural Resources Awareness Training. Mitigation Measure CR-4: Implement Procedures for Inadvertent Discovery of Cultural Material. Mitigation Measure CR-5: Evaluate Any Tribal Cultural Resources Discovered and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects.	LTS
Potential Damage to or Destruction of Previously Undocumented Human Remains	S	Mitigation Measure CR-6: Implement Procedures for Inadvertent Discovery of Human Remains.	LTS
3.8 Transportation and Circulation			
Temporary Increase in Traffic Load or Temporary Decrease in Capacity along Designated Roadways in the Project Area	S	None	SU
Increase Exposure of People to Significant Public Safety Hazards Resulting from Construction Activities on or Near the Public Road System	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
Increase Parking Demand	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
Increase Hazards Due to a Deterioration of Roadways	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
Interfere with Emergency Access	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS
Conflict or be Inconsistent with Vehicle-Miles-Traveled Standards	LTS	None	LTS
Conflict with a Program, Plan, or Ordinance: Decreased Performance or Safety of Alternative Modes of Transportation	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan. Mitigation Measure TR-2: Provide Bicycle and Pedestrian Access.	LTS

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TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.9 Air Quality			
Potential Conflict with Air Quality Plan or Contribute Substantially to Air Quality Violation	S	Mitigation Measure AQ-1: Implement SMAQMD's Basic Construction Emissions Control Practices. Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices. Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls. Mitigation Measure AQ-4: Use Electric Construction Equipment. Mitigation Measure AQ-5: Pay NOx Mitigation Fee to SMAQMD.	LTS
Potentially Expose Sensitive Receptors to Short-Term Dust Emissions	S	Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices.	LTS
Potentially Expose Sensitive Receptors to Short-Term Emissions of Toxic Air Contaminants	S	Mitigation Measure AQ-1: Implement SMAQMD's Basic Construction Emissions Control Practices. Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices. Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls. Mitigation Measure AQ-4: Use Electric Construction Equipment.	LTS
Potentially Expose Sensitive Receptors to Major Source of Odor	LTS	None	LTS
Operational Emissions of Criteria Air Pollutants and Precursors	LTS	None	LTS
3.10 Greenhouse Gas Emissions and Energy Consumption			
Temporary, Short-term Generation of Greenhouse Gas Emissions or Conflict with an Applicable GHG Emissions Reduction Plan and Effects of Climate Change	S	Mitigation Measure GHG-1: Avoid, Minimize, and Compensate for Greenhouse Gas Emissions Effects.	LTS
Result in a Potentially Significant Environmental Impact due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources, During Project Construction or Operation; and/or Conflict With or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	LTS	None	LTS
3.11 Noise			
Temporary Increase in Ambient Noise Levels or Exposure of Sensitive Receptors to Excessive Noise or Vibration	S	Mitigation Measure NOISE-1: Implement Noise Reduction Practices. Mitigation Measure NOISE-2: Implement Vibration Control Measures.	LTS

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TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.12 Recreation			
Temporary and Short-term Changes in Recreational Opportunities during Project Construction Activities	S	Mitigation Measure REC-1: Avoid and Minimize Effects on Recreational Use.	SU
3.13 Public Utilities and Service Systems			
Result in Solid Waste Generation in the Project Area that Would Exceed Landfill Capacity	LTS	None	LTS
Adversely Affect Emergency Response Services	S	Mitigation Measure UTIL-1: Avoid and Minimize Service Disruptions and Damage to Utilities and Infrastructure.	LTS
3.14 Hazards and Hazardous Materials			
Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites	S	Mitigation Measure HAZ-1: Implement Stormwater Pollution Prevention Plan Best Management Practices and Test Site for Contaminants Prior to Construction.	LTS
Interfere with Emergency Response Plan or Evacuation Plan	LTS	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.	LTS

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TABLE OF CONTENTS

American River Watershed Common Features 2016 American River Contract 1—Supplemental EA/EIR

Page

Page

Page

Appendices

List of Figures

Page

List of Tables

Acronyms and Other Abbreviations

1987 Manual	*1987 Corps of Engineers Wetland Delineation Manual*
2017 Scoping Plan	*California's 2017 Climate Change Scoping Plan*
AB	Assembly Bill
ACE	annual chance exceedance
AFV	alternative fuel vehicle
APE	Area of Potential Effects
ARCF	American River Watershed Common Features
ARCF GRR	American River Watershed Common Features General Reevaluation Report
ARCF GRR FEIS/FEIR	May 2016 American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement/Environmental Impact Report
Arid West Supplement	*Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*
Basin Plan	*Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin*
BMP	best management practice
BO	biological opinion
BPWG	Bank Protection Working Group
Business Plan	Hazardous Material Release Response Plan
BWFS	Basin-Wide Feasibility Study
CAA	Federal Clean Air Act
CAAQS	California ambient air quality standards
CAFE	Corporate Average Fuel Economy
Cal EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations

cfs	cubic feet per second
CHHSL	California Human Health Screening Level
City	City of Sacramento
CNDDB	California Natural Diversity Database
CO	carbon monoxide
County	County of Sacramento
CRHR	California Register of Historical Resources
CSUS	California State University, Sacramento
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
cy	cubic yards
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
DWR	California Department of Water Resources
EA	Environmental Assessment
EIS/EIR	environmental impact statement/environmental impact report
EO	executive order
EP	Engineering Pamphlet
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 1992
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	*Federal Register*
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	geographic information system
GPS	Global Positioning System
GRR	general reevaluation report
H:V	slope ratio of horizontal to vertical
HMMAMP	Habitat Mitigation, Monitoring, And Adaptive Management Plan
HPMP	Historic Properties Management Plan

HPTP	Historic Properties Treatment Plan
HRA	health risk assessment
HSC	California Health and Safety Code
I-5	Interstate 5
I-80	Interstate 80
IEPR	Integrated Energy Policy Report
in/sec	inches per second
IWM	instream woody material
LAR	Lower American River
LARTF	Lower American River Task Force
lb/day	pounds per day
L_{eq}	average hourly noise level
LMA	local maintaining agency
L_{max}	maximum noise level
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
mm	millimeters
MRZ	Mineral Resource Zone
MSAT Protocol	Mobile Source Air Toxics Protocol
$MTCO_2e$/year	metric tons of carbon dioxide equivalent per year
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act of 1966
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NN	non-native
NO_x	oxides of nitrogen
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
NWIC	Northwest Information Center

O&M	operations and maintenance
OHWM	ordinary high-water mark
OSHA	Occupational Safety and Health Administration
PA	*Programmatic Agreement Among the U.S. Army Corps of Engineers and the California State Historic Preservation Officer Regarding the American River Common Features Project, Sacramento and Yolo Counties, California*
Parkway	American River Parkway
Parkway Plan	American River Parkway Plan
Phase 1 ESA	Phase 1 Environmental Site Assessment
$PM_{2.5}$	of 2.5 micrometers or less
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PPV	peak particle velocity
PRC	California Public Resources Code
Project Area	project area for the American River Watershed Common Features, Water Resources Development Act of 2016 Project, American River Contract 1, Subreach 2 and three off-site riparian habitat restoration sites
Proposed Action	ARCF 2016 Project, American River Contract 1
RM	river mile
ROG	reactive organic gases
RPA	Registered Professional Archaeologist
RWQCB	Central Valley Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SAFE Rule	Safer Affordable Fuel-Efficient Vehicles Rule
SAM	Standard Assessment Methodology
SB	Senate Bill
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
SRA	shaded riverine aquatic (habitat)
SRBPP	Sacramento River Bank Protection Project
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminant

TCR	Tribal Cultural Resource
TRAC	Technical Resource Advisory Committee
UAIC	United Auburn Indian Community
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
U.S. 50	U.S. Highway 50
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
WCM	Water Control Manual
WRDA	Water Resources Development Act
WRI	weighted relative response index

CHAPTER 1
Introduction

1.1 Proposed Action

1.1.1 Development of the Proposed Action

The Lower American River Task Force (LARTF) is a broad stakeholder group that focuses on flood, environmental, and recreational management issues affecting the lower reach of the American River from Folsom Dam to the Sacramento River. In the mid-1990s, LARTF members called for the formation of the Bank Protection Working Group (BPWG) to help plan, design, and implement bank protection features along the Lower American River (LAR). A primary goal of the BPWG is to support Federal, State, and local efforts to provide the highest level of flood protection for the surrounding community and the conservation of irreplaceable resources along the American River Parkway (Parkway). Together with the U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (CVFPB), the California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA), the BPWG successfully helped to design and implement five bank protection sites along the LAR that integrated bank protection and habitat. Construction of these sites, referred to as LAR Sites 1–5, was authorized under the Sacramento River Bank Protection Project.

During that same era, the American River Watershed Common Features (ARCF) and the Folsom Dam Modifications projects, which were a part of the 1996 American River Watershed Project, were authorized by Congress in the 1996 Water Resources Development Act (WRDA), with the goal of providing a higher level of flood protection to the Sacramento area. These projects were intended to improve LAR levees to control seepage and increase stability, enlarge the outlet capacity of Folsom Dam, and raise Folsom Dam to increase the level of flood protection for the City and County of Sacramento. In 2002, LARTF participants cooperated in preparing the Lower American River Corridor Management Plan to provide a framework for integrated management of this reach of the river. This management plan is intended to serve as a catalyst for updating the 1985 American River Parkway Plan.

Now, with both the Folsom Dam Joint Federal Project and the levee improvements of the American River Common Features WRDA projects completed, the ability to manage large flood events has been improved along the LAR by allowing more water to be safely released from Folsom Dam/Reservoir earlier in a major storm event. There is more flood storage capacity in Folsom Reservoir to control peak inflows and better manage the

releases, up to 160,000 cubic feet per second (cfs) into the LAR. However, at the time the above-referenced projects were studied, the extent of erosion impacts was not well understood, and none of these projects implemented bank erosion protection measures to address the increased erosion potential from higher and longer releases from Folsom Dam.

As a result, in 2015, LARTF members called for the re-formation of the BPWG to help advise, plan, design, and implement bank erosion protection features along the LAR. The intent was to better understand how the river channel may respond under an extended 160,000 cfs release from Folsom Dam during an extreme flow event. A flow event of this magnitude could have the potential to induce substantial erosion and affect valuable resources in the Parkway. Because of the highly technical issues facing the BPWG under this scenario, a multi-disciplinary committee composed of various agency and interested party stakeholders was developed. The committee initially consisted of flood control technical experts and was referred to as the Technical Advisory Committee. The need for additional expertise, specifically natural resource experts, was identified and formed as the Resource Advisory Committee (RAC). Together, the Technical Advisory Committee and Resource Advisory Committee form the larger Technical Resource Advisory Committee (TRAC) to help consider both existing condition resource impacts and potential short-term and long-term impacts.

The LARTF relies on the BPWG to assist with, through coordination and technical input, bank erosion and protection along the LAR. As mentioned above, the TRAC was formed to provide an independent multidiscipline review and contribution of technical assistance to the BPWG's efforts. The work of the TRAC and its consultant team has focused on technical issues, including use of a more risk based approach. The goal of the TRAC is for erosion site identification and evaluation processes used to be consistent with USACE and State (DWR, CVFPB, and Urban Levee Design Criteria) requirements. The efforts of these working groups have resulted in identifying the Proposed Action in this document.

1.1.2 Summary of the Proposed Action

The American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement/Environmental Impact Report (ARCF GRR FEIS/FEIR) analyzed the basic erosion protection measures that underlie the Proposed Action in this Supplemental Environmental Assessment (EA)/EIR. However, some elements of those improvements (specifics of designs, staging areas, haul routes, disposal of soil, and off-site mitigation) were not analyzed in the ARCF GRR FEIS/FEIR because their design had not sufficiently progressed to provide the specificity required for project implementation. Through project design and refinement, USACE has now identified specific locations and improvements to address erosion concerns, potential staging areas, haul routes, disposal site, and off-site mitigation that constitute this Proposed Action. This EA/EIR supplements the ARCF GRR FEIS/FEIR by analyzing the environmental effects of these elements.

The Proposed Action in this document comprises the installation of approximately 5,500 linear feet of erosion protection and on-site riparian habitat features along the LAR

in the project area for the ARCF Water Resources Development Act of 2016 Project, American River Contract 1, Subreach 2, and three off-site riparian habitat restoration sites (Project Area). The Project Area contains a levee segment, Site 2-1, that was identified by the TRAC as having the highest degree of potential failure during high-flow events due to erosion and seepage.

1.2 Proposed Action Location

The Proposed Action is located in the City of Sacramento and in Sacramento County, California, along the left bank (while facing downstream) of the American River, from Paradise Beach at Glenn Hall Park upstream to Howe Avenue.

1.3 Purpose of and Need for Proposed Action

The Proposed Action has been formulated to achieve the purpose of and need for the proposed project, as summarized below. The project needs and objectives, as identified in the ARCF GRR, define the underlying need for the proposed project to which USACE is responding, in conformance with the requirements of the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] 1502.13 and 33 CFR Part 325, Appendix B).

1.3.1 Project Purpose

The purpose described in the ARCF GRR is to reduce the overall flood risk within the study area. An unacceptably high risk of flooding from levee failure threatens the public safety of approximately 530,000 people, as well as property and critical infrastructure throughout the study area. Approximately 83,000 structures throughout the study area are at risk of flooding in a 100-year event (1 percent annual chance of flooding). Additionally, the State Capitol and many State agencies are located in the study area. Historic flooding events have caused loss of life and extensive economic damage.

The Sacramento metropolitan area is one of the most at-risk areas for flooding in the United States and has a high probability of flooding due to its location at the confluence and within the floodplain of two major rivers, the Sacramento and American Rivers. Both of these rivers have large watersheds with very high potential runoff. Past runoff events have overwhelmed the existing flood management system, which was designed and built many years ago, before modern construction methods were employed. These levees were constructed close to the river to increase velocities to flush out hydraulic mining debris. This debris is essentially gone now, and the high velocities associated with flood flows pose a significant risk of erosion to the levees, which are critical components of the flood management system necessary to reducing the flood risk in the study area. In addition, high flows within the American River associated with flood flows are eroding critical components of the flood management system necessary to reduce flood risk in the study area. In addition to the high probability of flooding, the consequences of flooding in the study area would be catastrophic in terms of life loss and property damage.

The purpose of the Proposed Action is specifically to protect and strengthen LAR levees to support the broader purpose of reducing associated flood risk.

1.3.2 Need for the Proposed Action

The Proposed Action is needed to reduce the risk of levee failure associated with erosion, particularly during high-flow events. The site that has been identified is located along a portion of the LAR where the levee is relatively close to the river channel. During high flows, this constrained reach is subjected to extremely high velocities that significantly increase the risk of erosion, leading to levee failure. The Proposed Action would strengthen the levee system along the LAR within the identified reach and would reduce the potential risk of levee failure from erosion, reducing the risk of a catastrophic flood event within the Sacramento metropolitan area.

1.4 Related Documents

The Proposed Action is a component of a larger effort in the Sacramento region. USACE and the CVFPB jointly published the ARCF GRR Draft EIS/EIR in March 2015, in accordance with the requirements of NEPA and the California Environmental Quality Act (CEQA) (State Clearinghouse No. 2005072046). The Draft EIS/EIR analyzed the impacts of the ARCF GRR to reduce the overall flood risk within the delineated study area. The study area includes the City of Sacramento and surrounding areas. A Final EIS/EIR was issued in January 2016, and comments were received between January 22 and February 22, 2016. A revised Final EIS/EIR was issued in May 2016. The Record of Decision for the ARCF GRR was signed by the Assistant Secretary of the Army (Civil Works) on August 29, 2016. The ARCF GRR was authorized by Congress in December 2016. The following is a list of ARCF 2016 Project documentation, or documentation for related actions, which may be relevant to the current Supplemental EA/EIR:

- May 1988, Sacramento River Flood Control System Evaluation, Initial Appraisal Report—Sacramento Urban Area, Phase I, USACE Sacramento District.
- December 1991, American River Watershed Investigation California Feasibility Report: Part I—Main Report and Part II—EIS/EIR.
- December 1991, American River Watershed Investigation California Feasibility Report, Volume 2, Appendix G: Section 404 Evaluation.
- March 1996, Supplemental Information Report, American River Watershed Project, California: Part I—Main Report and Part II—Final Supplemental EIS/EIR.
- June 27, 1996, Chief's Report on the Final Supplemental EIS, signed by Acting Chief of Engineers, Major General Pat M. Stevens; and July 1, 1997, Record of Decision on the Final Supplemental EIS, signed by Director of Civil Works, Major General Russell L. Furman.

- November 2008, FEIS for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento, CA, prepared by EDAW/AECOM, Sacramento, California.
- October 2010, FEIS on the Natomas Levee Improvement Project Phase 4b Landside Improvement Project, Sacramento, CA, prepared by AECOM, Sacramento, California.
- September 2015, Final Biological Opinion for the American River Common Features General Reevaluation Report, issued by the U.S. Fish and Wildlife Service, Sacramento, California.
- September 2015, Final Fish and Wildlife Coordination Act for the American River Common Features General Reevaluation Report, issued by the U.S. Fish and Wildlife Service, Sacramento, California.
- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, FEIS/EIR.
- July 2016, FEIR, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project, prepared for SAFCA by GEI Consultants.
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy.
- June 2017, Reinitiation of the ARCF Project, Sacramento County, California.
- February 2019, Final Supplemental EA/Initial Study, ARCF Seepage Stability Berm, Reach D Contract 1.
- May 2019, Reinitiation of the ARCF Project, Sacramento County, California.
- June 2019, Final Supplemental EA/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site.
- November 2019, Final Supplemental EA/EIR, ARCF 2016, Sacramento East Levee Contract 1.

1.5 Authority

The proposed levee improvements are proposed under the ARCF 2016 Project and is associated with the American River Watershed Common Features Project, which was authorized by Section 101(a)(1)(A) of the WRDA of 1996, Public Law No. 104-303 Section 101(a)(1), 110 Stat. 3658, 3662–3663 (1996), as amended by Section 366 of the WRDA of 1999, Public Law No. 106-53, Section 366, 113 Stat. 269, 319-320 (1999). Additional authority was provided following the interim general reevaluation study in Section 1322(b) of the WRDA of 2016, Public Law No. 114-322, Section 1322,

130 Stat. 1707, also known as the Water Resources Infrastructure Improvements for Nation Act, and Public Law 115-123 (Bipartisan Budget Act of 2018).

1.6 Purpose of the Supplemental Environmental Assessment/Environmental Impact Report

This Supplemental EA/EIR: (1) describes the existing environmental resources in the Project Area; (2) evaluates the environmental effects of the alternatives (see Chapter 2, *Alternatives*) on these resources; and (3) identifies measures to avoid, minimize, or reduce any effects to a less-than-significant level. This Supplemental EA/EIR has been prepared in accordance with NEPA and CEQA. USACE and the CVFPB anticipate that USACE can implement the portion of the authorized ARCF project described in this document as the Proposed Action without additional NEPA or CEQA analysis beyond this Supplemental EA/EIR if there are no substantial deviations from proposed uses or the conditions of these uses.

The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500–1508) and USACE's Procedures for Implementing NEPA (ER 200-2-2) specify that supplemental NEPA analyses are required if: (i) USACE makes substantial changes in the proposed action that are relevant to environment concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

Section 15162 of the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000 et seq.) provides that when an EIR has been certified for a project, a subsequent EIR need not be prepared unless a substantial change in the project, a substantial change in the surrounding circumstances, or new information of substantial importance comes to light which reveals the project would have one or more new or substantially more severe significant environmental effects not discussed in the certified EIR. A lead agency may choose to prepare a supplement to an EIR, rather than a subsequent EIR, when conditions that require preparation of a subsequent EIR are met, but "only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation" (State CEQA Guidelines, 14 CCR Section 15163).

This Supplemental EA/EIR supplements (does not replace) the previously certified ARCF GRR FEIS/FEIR and addresses project modifications, changed circumstances, and new information that could not have been known with the exercise of reasonable diligence at the time the prior document was certified, as required under State CEQA Guidelines (14 CCR Section 15163).

The purpose of this supplemental EA/EIR is to provide the additional information necessary to make the previous EIR adequate for the project as modified. Accordingly, pursuant to the State CEQA Guidelines (14 CCR Section 15163), the Supplemental EA/EIR need contain only the information necessary to analyze the project modifications,

changed circumstances, and new information that triggered the need for additional environmental review. This Supplemental EA/EIR is intended to:

- address new or substantially more severe significant environmental effects related to any project modifications;
- recommend mitigation measures to avoid any new or substantially more severe significant environmental effects or reduce them to a less-than-significant level;
- update impact analysis and mitigation measures where conditions have changed since the publication of the ARCF GRR Final EIS/EIR;
- provide minor additions and changes to the ARCF GRR FEIS/FEIR warranting a Supplemental EA/EIR for the following reasons:
  - there would be no new potentially significant and unavoidable or significant and unavoidable impacts from the Proposed Action;
  - the few new impacts from the Proposed Action can be mitigated to a less-than-significant level with implementation of measures identified in Chapter 3 of this Supplemental EA/EIR, *Environmental Setting, Impacts, and Mitigation Measures*; and
  - applicable measures in the existing Mitigation Monitoring and Reporting Program continue to apply to the Proposed Action.

As the CEQA lead agency, the CVFPB will consider the information presented in this Supplemental EA/EIR, comments received on this Supplemental EA/EIR, and responses to those comments, along with the entire administrative record (including the administrative record for the ARCF GRR FEIS/FEIR), when determining whether to approve the proposed project modifications. This Supplemental EA/EIR has been prepared in accordance with the requirements of CEQA and the State CEQA Guidelines.

The ARCF GRR FEIS/FEIR analyzed many elements of the Proposed Action, including bank protection and launchable rock trench. The analysis in this Supplemental EA/EIR focuses on project modifications and refinements, and details that were not analyzed in the ARCF GRR FEIS/FEIR, including staging areas, haul routes, borrow sites, and more detailed cultural resources information, which constitute the Proposed Action for this Supplemental EA/EIR. Each topic section includes a discussion of those issues and impacts that were not considered in the ARCF GRR FEIS/FEIR because the level of specificity necessary for project implementation was not known at the time. This Supplemental EA/EIR has been prepared in accordance with the requirements of NEPA and the guidelines for implementation of CEQA for supplemental environmental documents.

1.7 Decision Needed

The District Engineer, Commander of the Sacramento District, must decide whether the actions constituting the Proposed Action qualify for a Finding of No Significant Impact (FONSI) under NEPA, or whether a Supplemental EIS must be prepared due to potentially significant environmental impacts not previously disclosed. The CVFPB must decide whether to certify the Supplemental EIR under CEQA.

CHAPTER 2
Alternatives

2.1 Introduction

The ARCF GRR FEIS/FEIR previously analyzed several alternatives, including the No Action/No Project Alternative and two action alternatives that were similar except that one alternative included widening of the Sacramento Weir and Bypass (Alternative 2), and found Alternative 2 to be the preferred alternative. This chapter describes the No Action/No Project alternative and the Proposed Action, which consists of previously unanalyzed improvements and related actions to be undertaken within the section of levee along the Lower American River (LAR) from River Mile (RM) 5.1 to RM 6.6 following design details not previously described in the ARCF GRR FEIS/FEIR.

2.2 No Action/No Project Alternative

USACE and the CVFPB are required to consider No Action/No Project as one of the alternatives for selection to comply with the requirements of NEPA and CEQA, respectively. With the No Action/No Project Alternative, it is assumed that no additional features would be implemented by the Federal Government or State and local interests to achieve the project purpose, over and above those elements of the authorized ARCF Project.

Under the No Action/No Project alternative, USACE or the CVFPB would not conduct any additional work to address seepage, slope stability, overtopping, or erosion concerns in the Sacramento metropolitan area. The local maintaining agency (LMA) would address vegetation and encroachments over time under the System-Wide Improvement Framework agreement, which would improve the condition of the levee system, but it would be speculative to assume that any additional work would be conducted to address the seepage, slope stability, overtopping, or erosion concerns in the project area.

As a result, if a major flood event were to occur, the Sacramento area would remain at heightened risk of a levee failure. The urban development within the project area would continue to be at heightened risk of flooding. The levees within the project area could fail and result in a catastrophic disaster leading to loss of life and property. If a levee failure were to occur, major government facilities would be impacted until flood waters recede. Workers would be unable to perform their duties until the buildings are restored and could be occupied. This could cause a temporary shutdown or slowdown of many State and local government functions. Also, there are many transportation corridors within the project area that could be flooded if levees were to fail.

2.3 Proposed Action

The ARCF GRR FEIS/FEIR identified areas along the LAR levees that require improvements to address erosion. The leveed reach of the LAR was subdivided into four subreaches for the purpose of erosion analysis, as shown in **Figure 2-1**. The Proposed Action consists of implementing erosion protection measures between LAR RM 5.1 and 6.6 to prevent erosion, which, if unaddressed, could potentially undermine the levee foundation causing it to fail. There are two measures that were proposed for the American River levees in the ARCF GRR FEIS/FEIR: (1) bank protection, and (2) launchable rock[1] trenches. Both of these erosion protection measures are described in detail below. Terminology used to describe specific features of the levees is shown on **Figure 2-2**. The Proposed Action would improve/protect a section of levee within Subreach 2 (between Paradise Beach and the Guy West Bridge) as shown on **Figure 2-3**. This levee segment was identified by the TRAC and BPWG as having the highest degree of potential failure during high-flow events due to erosion. The Proposed Action is described in detail below and is prefaced by descriptions of the two construction elements implemented: bank protection and launchable rock trench.

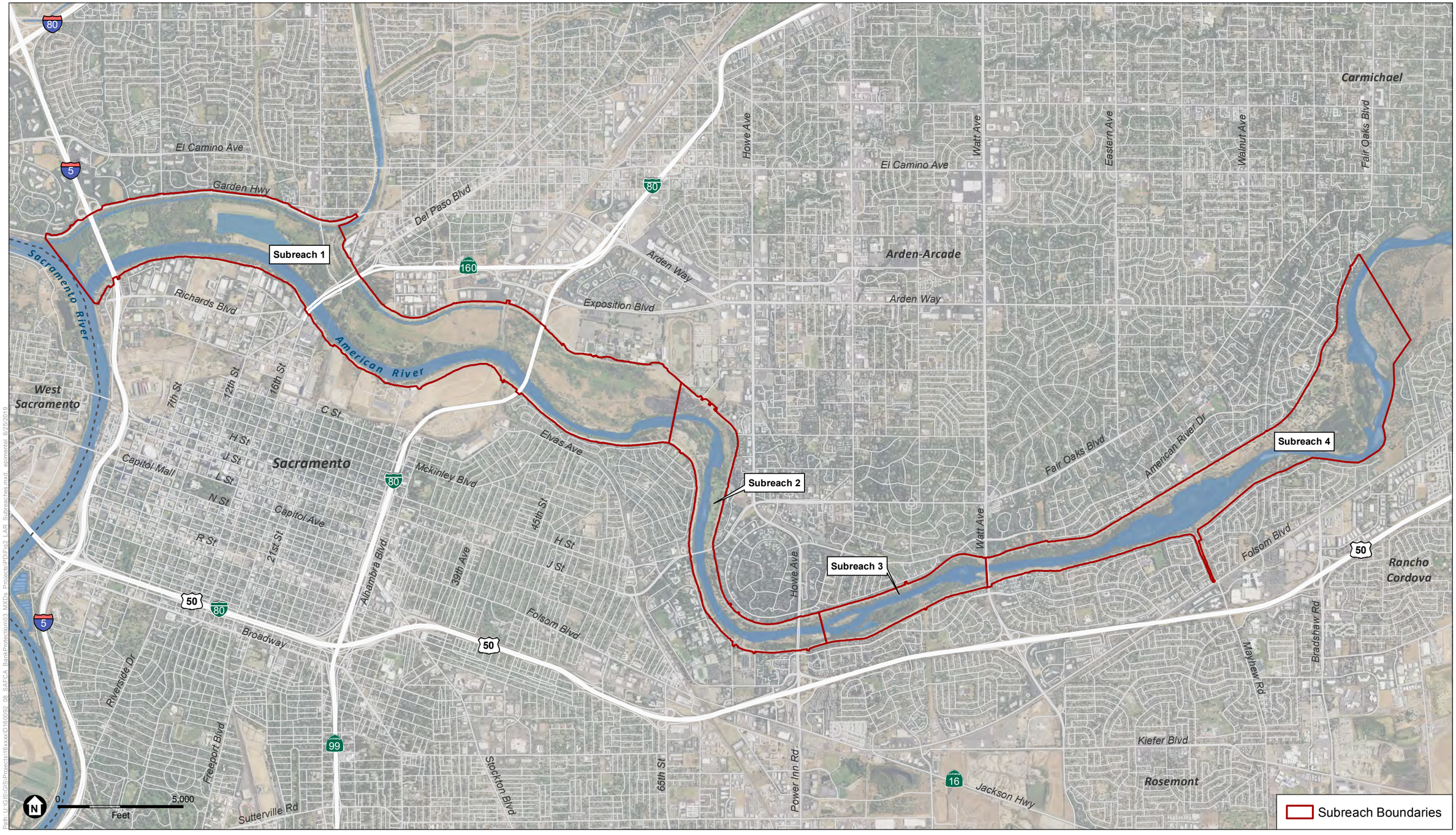
2.3.1 Definitions of Terms

2.3.1.1 Bank Protection

Bank Protection consists of placing rock revetment on the river's bank, and in some locations on the levee slope, to prevent erosion. When necessary, the eroded portion of the bank would be filled and compacted prior to the rock placement. The site would be prepared by clearing and stripping vegetation and loose materials prior to construction. Where possible, native trees at the site would not be disturbed. Temporary access ramps would be constructed, if needed, using imported borrow material that would be trucked on site.

Revetment (also called riprap) would be imported from an off-site location via haul trucks and temporarily stored at staging areas located in the immediate vicinity of the construction site. A loader would be used to move revetment from the staging area to a transfer dump truck which would deliver the revetment to areas along the levee where excavators would be moving the material where needed for bank protection. The excavators would place a large rock berm in the water up to an elevation slightly above the mean summer water surface. A planting trench would be established on these rock surfaces for revegetation purposes. The excavators would either work from the top of the bank placing revetment on the bank beneath it and in the water, or from the rock berm that would previously be established.

[1] Launchable rock is a term used to describe a type of rock revetment design typically used for locations where it is impractical to install revetment to the maximum predicted scour elevation. The launchable rock is placed as a thick blanket at the toe or bed of the river with adequate volume such that when scour occurs below the blanket, the rock will launch into the eroded area and arrest the progression of bank erosion.



SOURCE: NHC, 2019; ESA, 2019

ARCF 2016 American River Contract 1

Figure 2-1
Lower American River Subreaches

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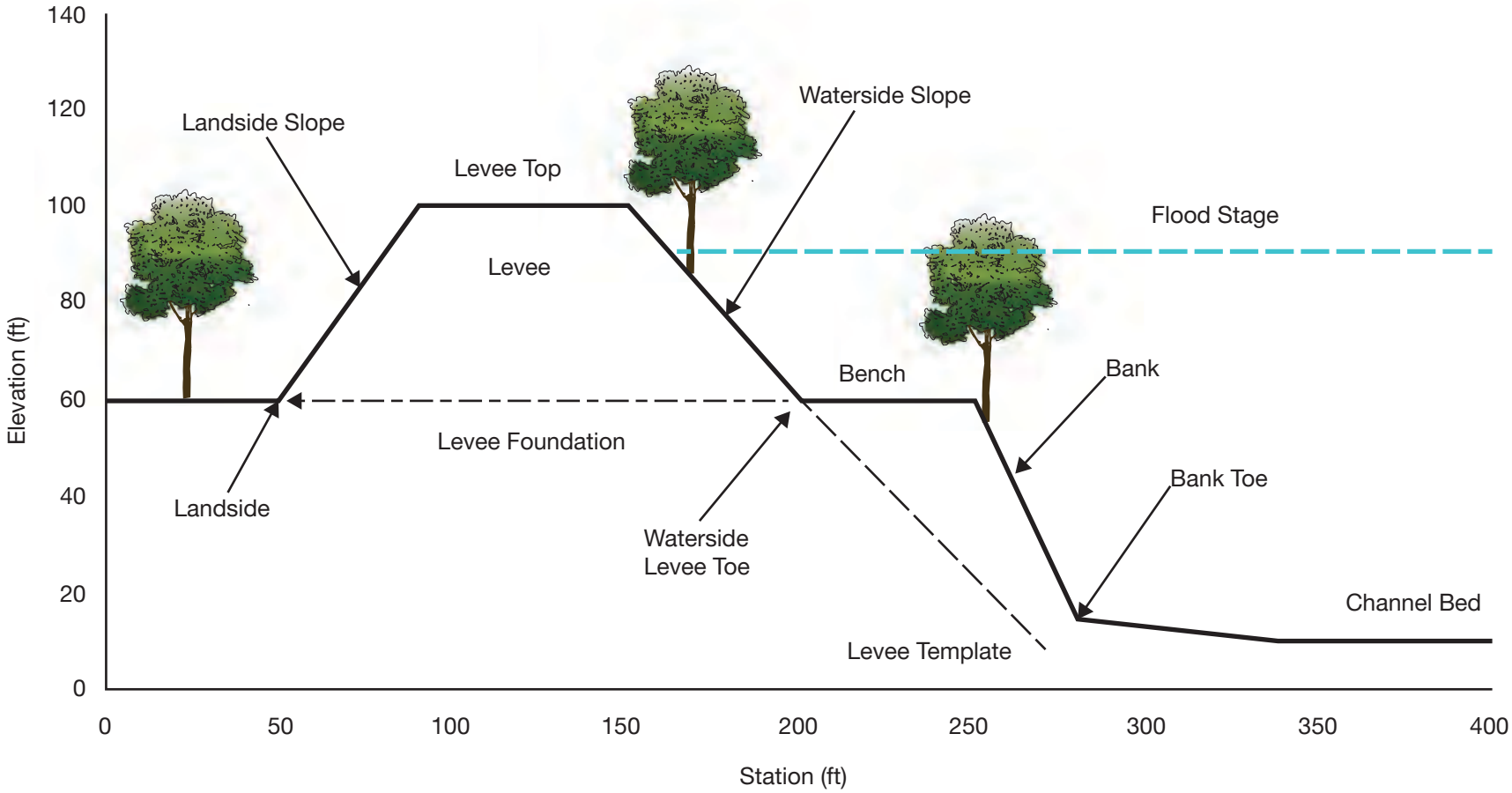

SOURCE: USACE

ARCF 2016 American River Contract 1

Figure 2-2
Levee Terminology

ESA

SOURCE: NHC, 2020; ESA 2020

Lower American River Resource Assessment

Figure 2-3
Site 2-1 Work Areas

ESA

The revetment would be placed on the existing bank at a slope varying from a 2 to 1 (horizontal to vertical) (2H:1V) slope to 3H:1V depending on site-specific conditions along the length of the project site. After revetment placement has been completed, a planting bench would be constructed in the rock, where feasible, to allow for revegetation of the site, outside of the vegetation free zone required by USACE Engineering Pamphlet (EP) 1110-2-18. This vegetation would be designed on a site-specific basis to minimize the operation and maintenance responsibility of the LMA and in such a way to not impact the hydraulic conveyance of the channel.

2.3.1.2 Launchable Rock Trench

This measure includes construction of a launchable-rock-filled trench, designed to deploy once erosion has removed the bank material beneath it. All launchable-rock trenches would be constructed outside of the main channel. The vegetation would be removed from the footprint of the trench and the levee slope prior to excavation of the trench. The trench configuration would include a 2H:1V landside slope and 1H:1V waterside slope and would be excavated at the toe of the existing levee. All soil removed during trench excavation would be stockpiled for reuse or disposal. The bottom of the trench would be constructed close to the summer mean water surface elevation to reduce the rock launching distance and amount of rock required.

After excavation, the trench would be filled with rock that would be imported from an off-site location. The trench would be covered after rock placement with a minimum of three feet of stockpiled soil to allow for planting over the trench. Rock placed on the levee slope would be covered with stockpiled soil. All disturbed areas would be reseeded with native grasses and small shrubs where appropriate. Vegetation would be permitted over the trench if planted outside the specified vegetation-free zone required by USACE EP 1110-2-18. This vegetation would likely be limited to native grasses, shrubs, and trees with shallow root systems to ensure that they do not limit the functionality of the trench during a flood event. This vegetation would only be permitted in a way that does not put undue burden on the LMA and in locations that do not interfere with the conveyance capacity of the channel.

2.3.2 Design Objectives

Overall, the design considerations for the project site include:

Erosion Risk: The repairs are intended to reduce the likelihood of erosion causing a levee breach prior to overtopping. Minimizing erosion and providing protection of public safety is the primary objective of the Proposed Action designs.

Hydraulic Capacity: The Proposed Action must avoid or offset hydraulic impacts as to not increase the risk of levee overtopping.

Environmental Resource Impacts: Although impacts on resources would be avoided where possible, short-term impacts due to construction are considered unavoidable. To compensate for unavoidable impacts on-site, the Proposed Action intends to improve the

overall long-term on-site resource conditions, where feasible, through design opportunities. However, it is recognized that off-site mitigation may still be required and could provide substantial opportunities to improve overall ecosystem values along the LAR.

Aesthetics and Recreation: The American River Parkway Plan, consistent with the State and Federal Wild and Scenic Rivers Acts, specifies that erosion control projects should include a revegetation program that screens the project from public view, provides for a naturalistic appearance of the site, and restores affected habitat values.

Infrastructure: Impacts to roadway and major utility infrastructure would be minimized to the extent practicable. Impacts to parkway infrastructure would also be minimized.

Biological Opinion Requirements: Both the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) issued Biological Opinions (BOs) for the ARCF GRR EIS/EIR. Both BOs include a number of Conservation Measures, Reasonable and Prudent Measures, and Terms and Conditions.

2.3.3 Site Description

Site 2-1 extends along the left descending bank[2] from approximately River Mile (RM)[3] 5.1 upstream to RM 6.6 and comprises two distinct sections (see **Figure 2-4**). The downstream section extending from Glenn Hall Park to the upstream end of Paradise Beach at RM 5.9, would include approximately 1,900 feet of bank protection in the form of placed riprap (large angular rocks) along the waterside levee slope extending and connecting to a buried launchable rock trench (i.e., a trench filled with riprap), which is setback a considerable distance from the active shoreline. The second portion (3,600 feet), extends from Paradise Beach at RM 5.9 to the upstream terminus of the improvements at RM 6.6 and is an area where the levee is very close to the shoreline. This section would include riprap bank protection along the waterside slope of the levee that would transition downward into a planting bench along the shoreline, which would be supported by a submerged launchable riprap toe. Two stretches of planting bench of with soil-filled rock slope protection of 2,500 feet and 650 feet, respectively, would be separated by a section of 300 feet of only soil-filled rock slope protection that transitions into a submerged launchable riprap toe, under H-Street Bridge, where no planting bench would occur. At the upstream end of the site a section of 150 feet of only soil-filled rock slope protection would connect the site to existing bank protection. The site would also surround three existing pump outfall structures. See **Figure 2-5** for a typical cross section of the erosion protection design. At the downstream end of the site, near Glenn Hall Park, a 400-foot-long staging area would be located. The whole site would be assumed to be surrounded by a 50-foot work area where equipment would access the site. The work areas, haul routes, and staging areas are referred to as the Temporary Project Area, while the areas with erosion protection are referred to as the Permanent Project Area. Both areas would be revegetated.

2 River banks are designated as left (L) or right (R) when facing downstream.

3 River miles are measured from the confluence of the American and Sacramento River at 0 and increase going upstream.

Figure 2-4a

AMERICAN RIVER

GRADING LIMIT

Figure 2-4b

S(FM)

S(FM)

S(FM)

S(FM)

H STREET BRIDGE

AMERICAN RIVER

NORTH

400 200 0 400 800

SCALE FEET

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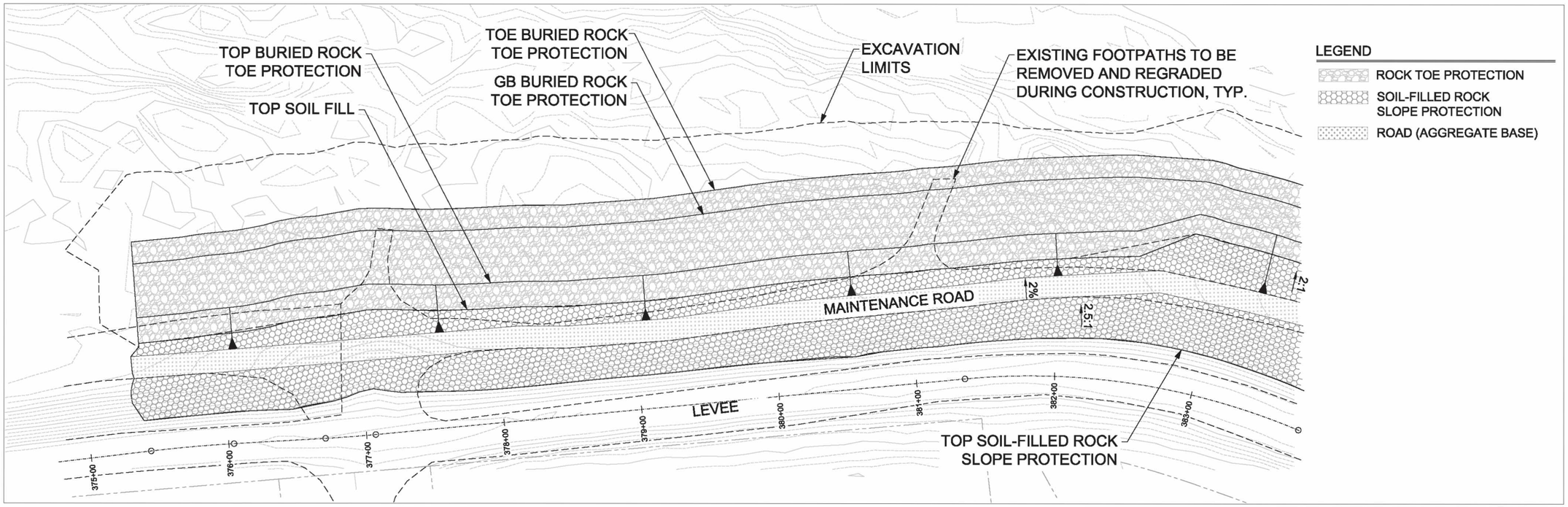
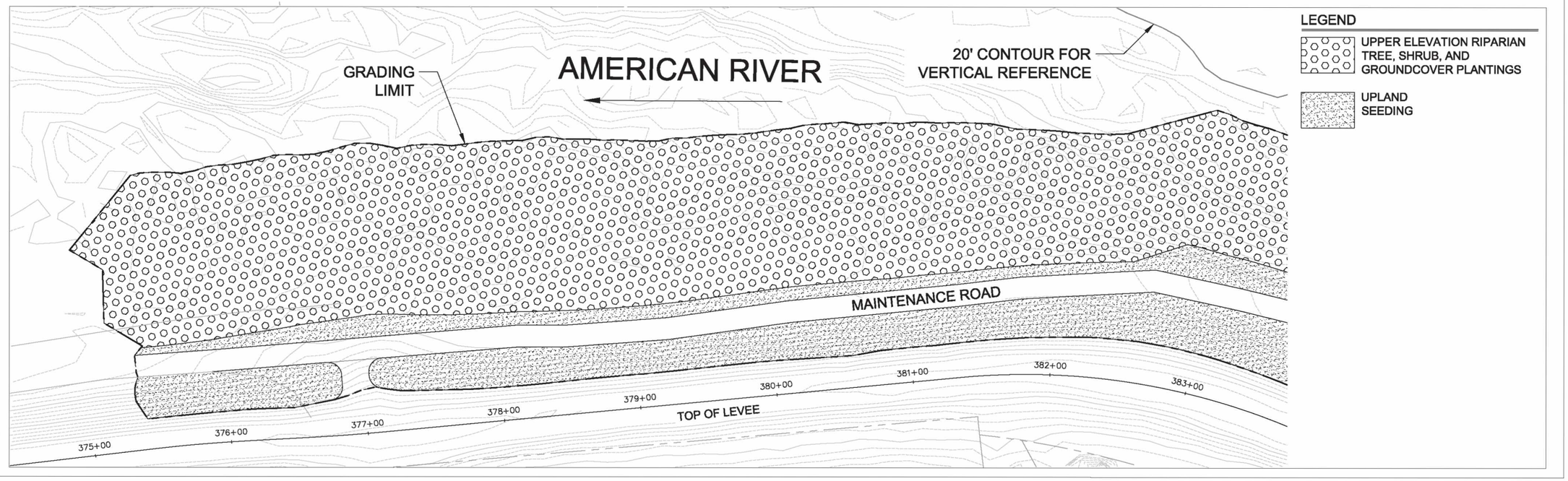
ESA

Figure 2-4
Site 2-1 Plan - Overview

FILE: U:\PROJECTS\SAC\19XXXXX\D190046.02 - 90 & 100% DESIGN SUBREACH 2 EROSION REPAIRS\08 CAD\DWG\EIR\SITE 2.1 OVERVIEW AND PLANTING PLAN.DWG LAST SAVE DATE: 4/7/2020 3:43 PM SAVED BY:rgutierrez





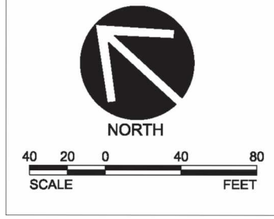


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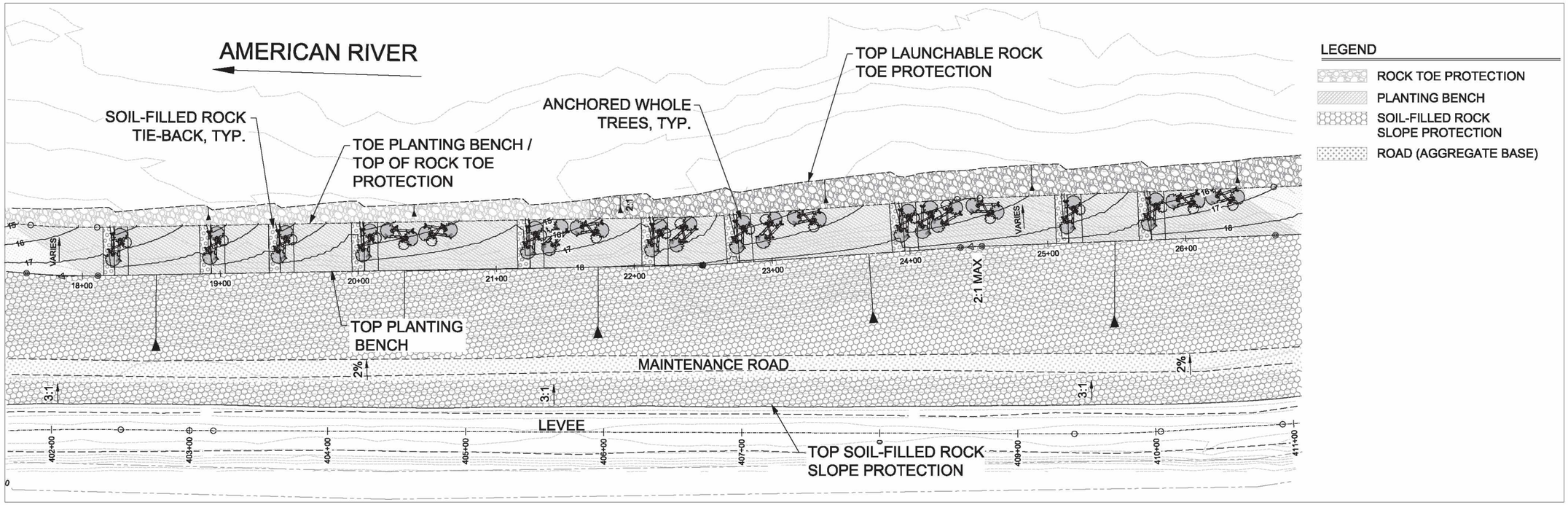
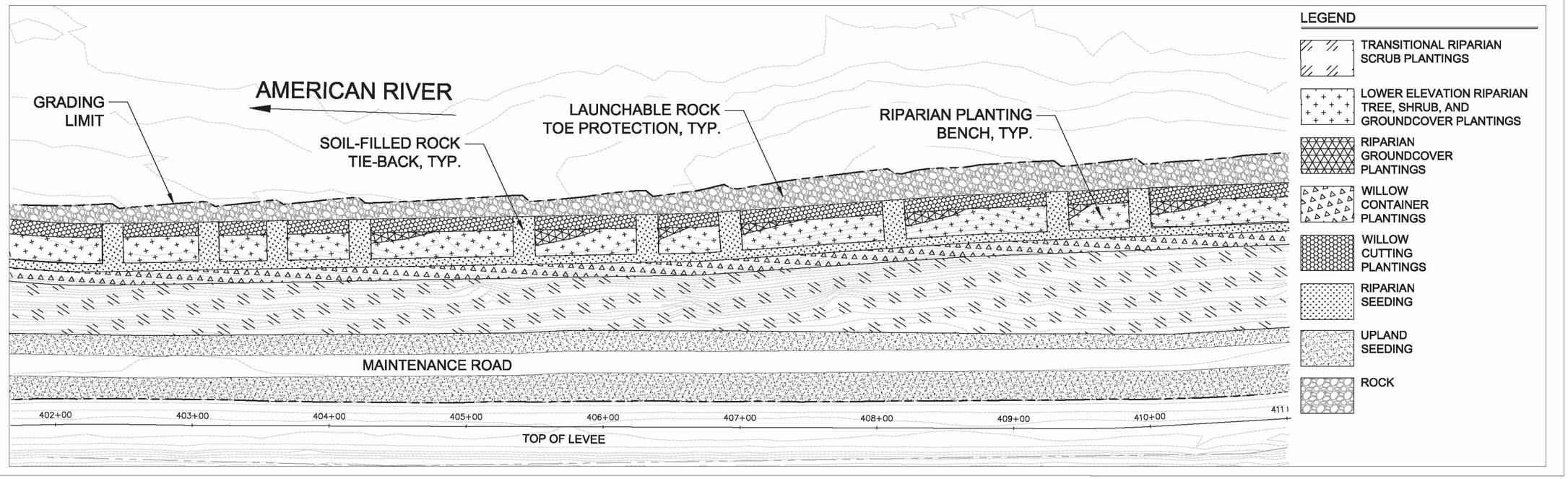
Figure 2-4a
Site 2-1 Typical Plan View at Downstream Segment





NORTH

40 20 0 40 80

SCALE FEET

ARCF 2016 American River Contract 1

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Figure 2-4b
Site 2-1 Typical Plan View at Upstream Segment

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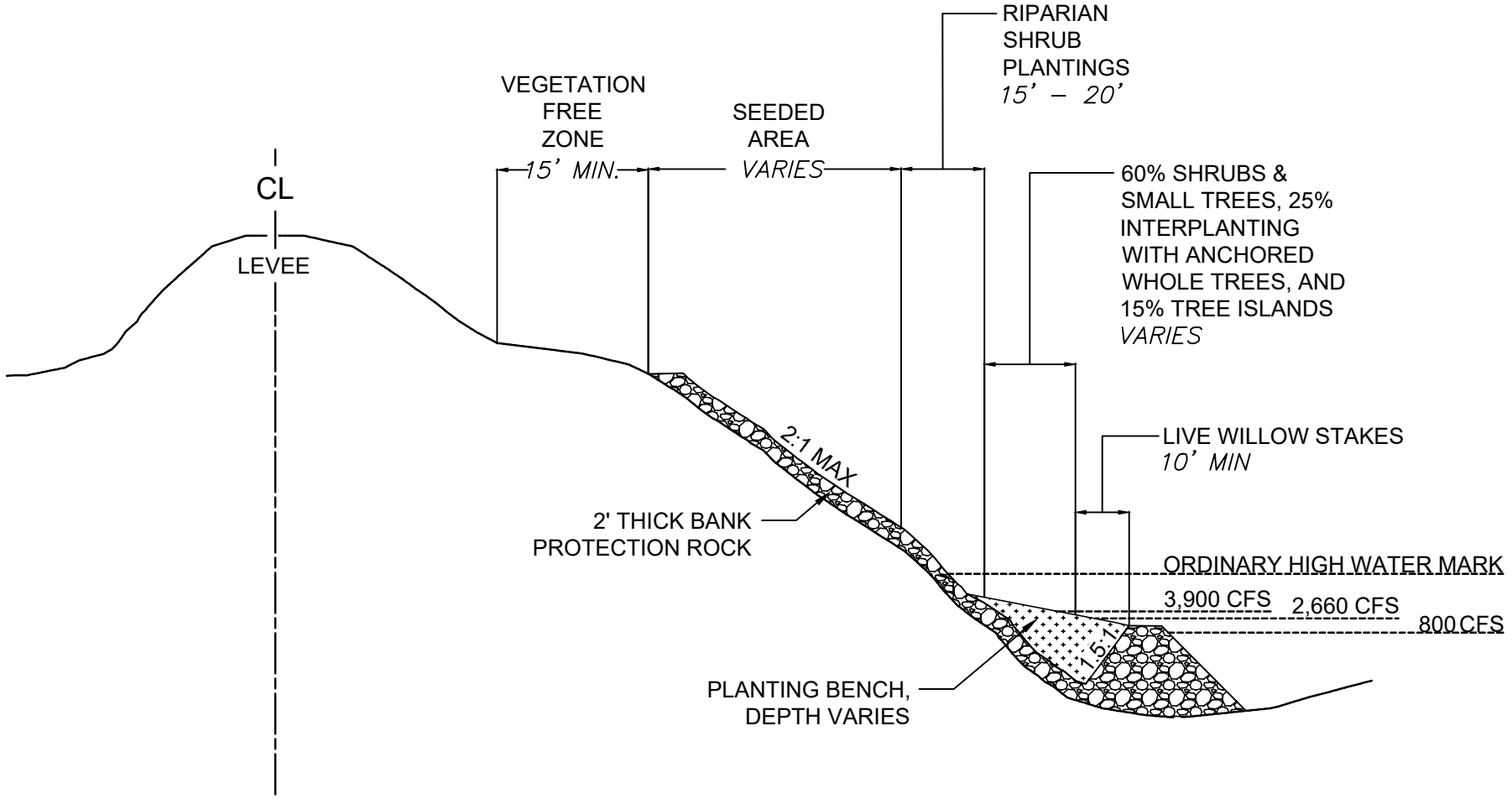

ARCF 2016 American River Contract 1

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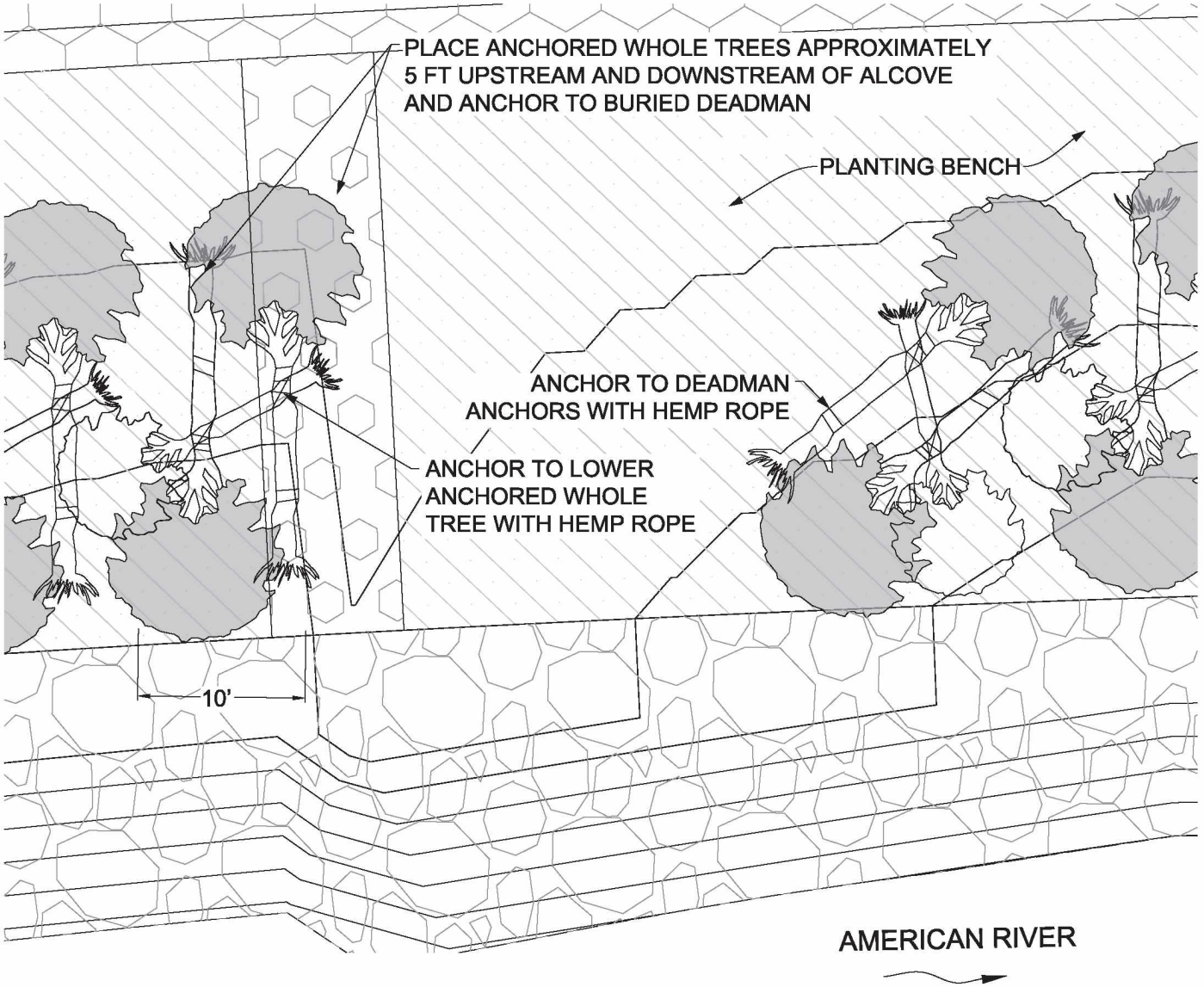
Figure 2-5
Typical Cross Section

The design of Site 2-1 was prepared to: (1) minimize impacts on hydraulic capacity; (2) maximize the width of the planting benches without impacting hydraulic capacity; (3) minimize excavation into the existing berm and preserving existing resources where possible; and, (4) minimize the footprint into the existing channel.

In both sections, riprap would be placed on the waterside levee slope without excavation into the levee. The top of the rock would be three feet above the expected 160,000 cfs water surface elevation to resist potential erosion caused by waves associated with wind during high flows. The riprap bank protection along the slopes would be a minimum of 2-foot-thick layer composed of a mix of 70 percent rock and 30 percent soil to promote vegetation establishment and would be covered with a one-foot layer of topsoil or with an aggregate base where there are existing roads. The launchable rock toe would be filled with maximum 36-inch rock only. The launchable rock trench at the levee toe near Glenn Hall Park would be covered with enough soil to meet the existing grades. The planting benches, which are approximately 35 feet wide and separated by rock-tie backs (**Figures 2-6a** through **2-6e**), would have a maximum soil depth ranging from approximately six to 10 feet. Following construction, the bank protection would be seeded with a mix of native herbaceous species and areas outside of the levee vegetation free zone, which includes the levee and a buffer area of approximately 15 feet from the levee toe, would also be planted with a mix of native trees and shrubs, as appropriate for the elevation.

The planting bench would provide on-site mitigation for juvenile salmonids contributing to their foraging and refuge requirements within the nearshore aquatic habitat known as shaded riverine aquatic (SRA) habitat. The planting benches would provide adequate soil volume in a soil-filled trench to establish native tree species as required for on-site mitigation. Each planting bench slopes both waterward to the toe of planting bench and downstream to an alcove. The planting bench slopes provide shoreline variability to allow for a diverse planting palette and design resiliency to provide habitat and refuge at a range of seasonal flows. Higher elevation areas of the bench would be planted with a mix of native riparian vines, shrubs, and trees. Lower elevation bench areas coincide with more frequently inundated areas where small dead trees with intact root wads, often referred to as instream woody material (IWM), would be placed where a mix of water dependent herbaceous plants would be planted. The planting bench would terminate at the launchable toe where rows of willow stakes would be planted to help stabilize the planting bench soil.

During the initial plant establishment, planting benches would be protected with biodegradable erosion control fabric on the surface and underlain with a permanent geotextile to retain soil below the planting bench during high flow events (see Figure 2-6b for a cross sectional view of the permanent geotextile layer under the planting bench soil. The planting bench would be placed over a minimum 2-foot-thick layer of clean riprap. The planting bench ends at the launchable toe section, which is 4 feet wide and slopes to the existing channel bottom at a 2H:1V slope. The launchable toe would be buried, if needed, to reduce the hydraulic impacts of rock projecting into the main channel. The launchable rock is in place to protect the toe of the bank if scour (lowering of the bed) of the natural river channel were to occur.



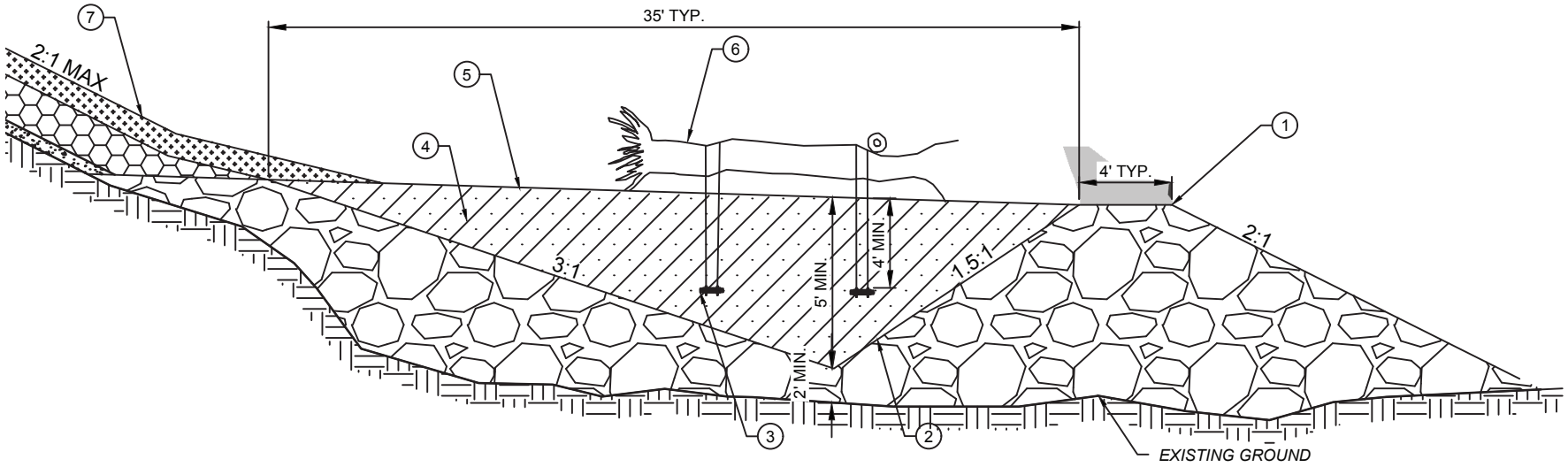
SOURCE: USACE, 2020

ARCF 2016 American River Contract 1

Figure 2-6a
Plan View of Planting Bench and Tie-Back

PLANTING BENCH DETAIL NOTES

1. PLACE TYPE 1A ROCK MIX FOR PLANTING BENCH. GRADE TO EXISTING GROUND AT 2:1 AND TO BOTTOM OF PLANTING BENCH AT 1.5:1 MAX.
2. PLACE GEOTEXTILE TYPE A OVER RIPRAP TO BE COVERED BY PLANTING BENCH
3. IWM DEADMAN ANCHORS
4. PLANTING BENCH SOIL MIX
5. EROSION CONTROL FABRIC OVER PLANTING BENCH MEDIUM. SEE PLANTING PLANS FOR PLANTING AND SEEDING DETAILS
6. IWM PLACED AT FINISH GRADE
7. TOPSOIL (1' THICK) TO ELEVATION SHOWN ON PLAN AND PROFILE SHEETS OVER TYPE 2B ROCK SOIL MIX (1.8' THICK) AND FILTER MATERIAL (6" THICK)



SOURCE: USACE, 2019

ARCF 2016 American River Contract 1

Figure 2-6b
Cross-Section of Planting Bench

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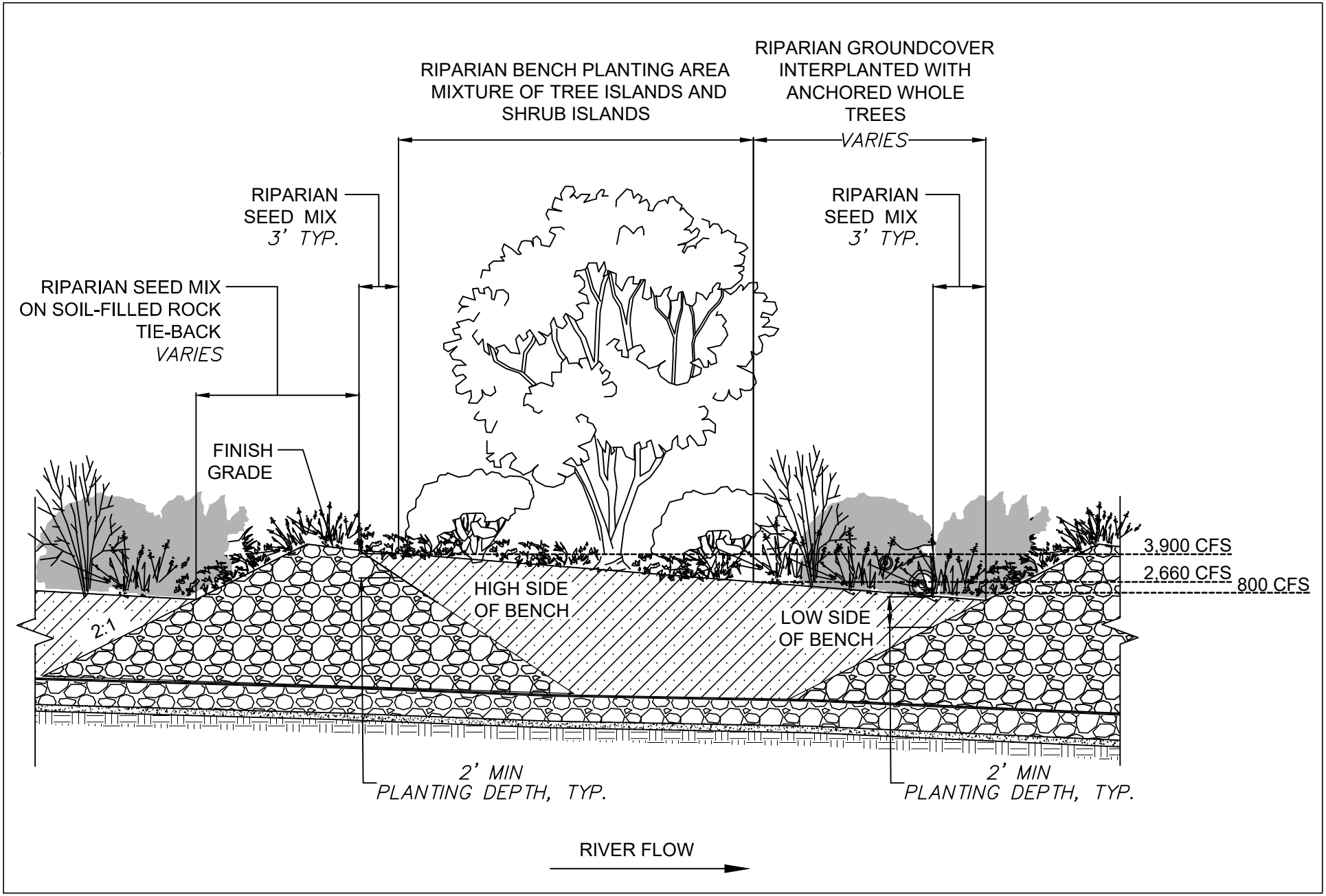

ARCF 2016 American River Contract 1

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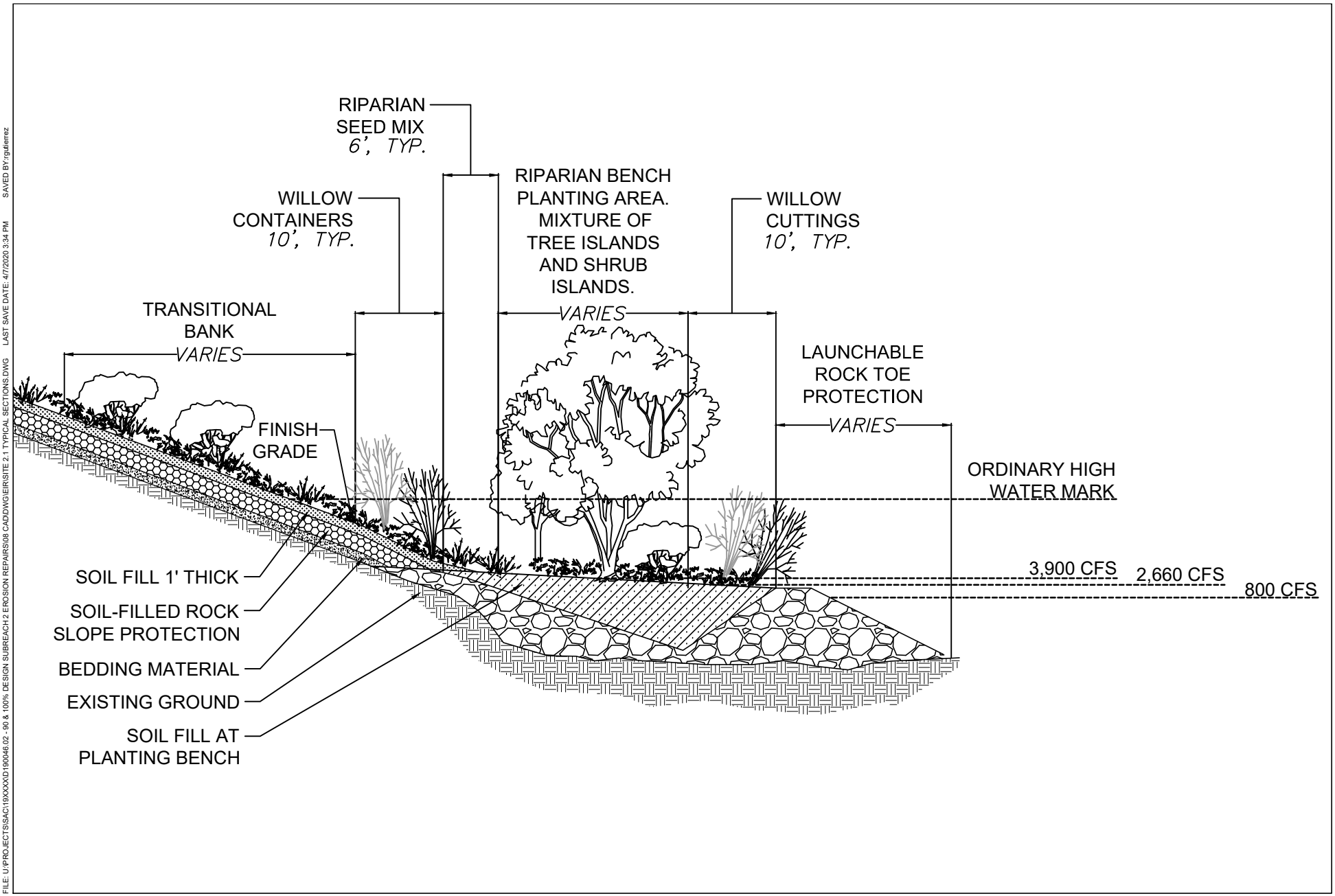
Figure 2-6c
Typical Planting Bench Section (View from River)



ARCF 2016 American River Contract 1

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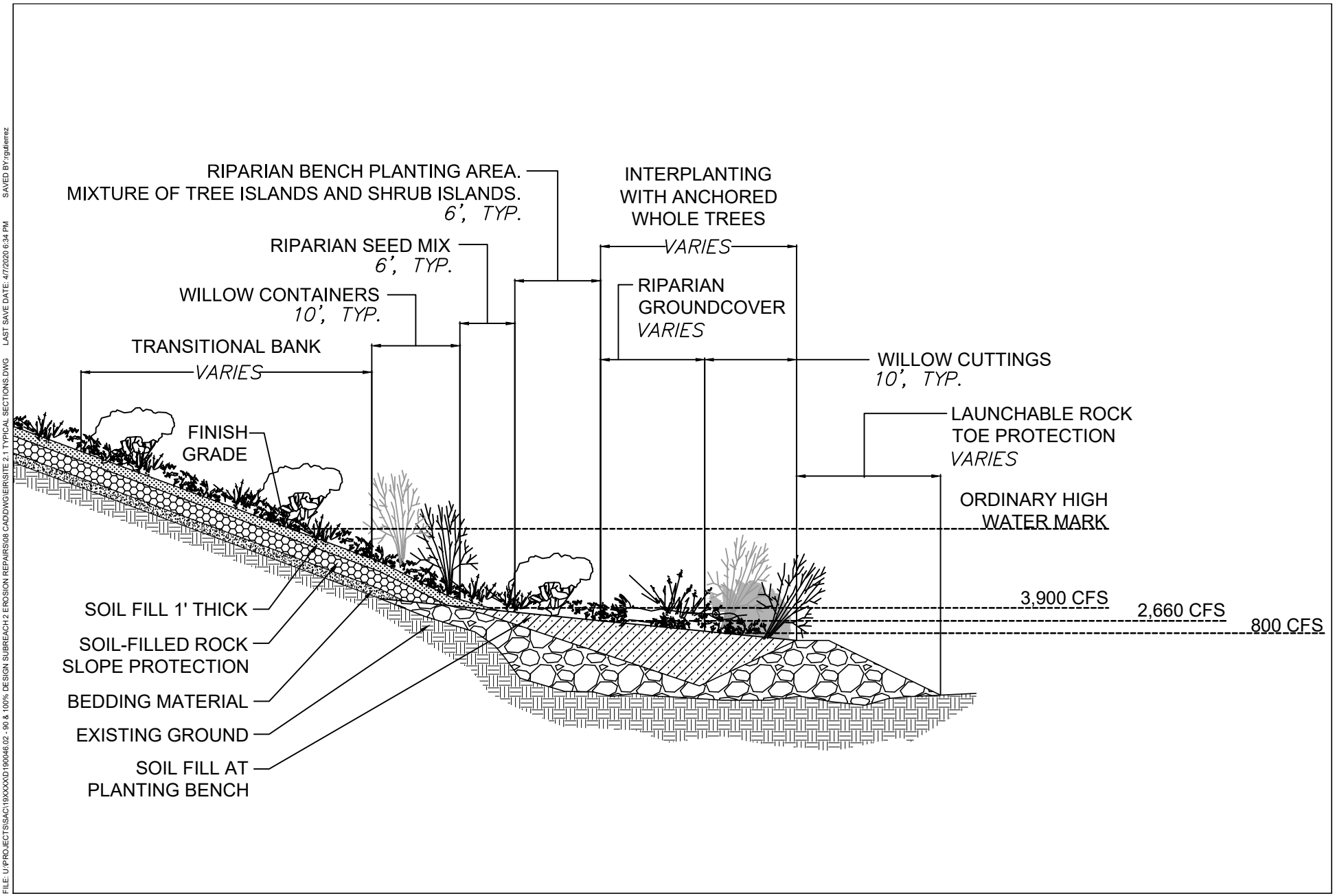
Figure 2-6d
Typical Planting Bench Section - High Side of Bench



ARCF 2016 American River Contract 1

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Figure 2-6e
Typical Planting Bench Section - Low Side of Bench

The channel is only expected to incise (cut down into the river bed) between 0-4 feet over the project life which would not cause the rock to launch to an extent that the planting bench would be affected. There are no significant protrusions (such as bridge piers) where local scour is expected to occur and induce the rock to launch. The scour process would more likely be due to natural fluctuations in bed elevations which may occur in flood events. The extent of the scour, if it were to occur, would unlikely reach the entire length of the site, but would more likely be localized to a few hundred feet at most. Flood events that would induce scour would need to have a substantial magnitude and duration for scour to occur more than 6 feet below the bed for the planting bench to be damaged. It would take an approximate 2 percent annual chance exceedance (ACE) flood for these conditions to be met, and would have a likelihood of less than 2 percent ACE for damage to a section of the planting bench. In the event that the riprap would launch the planting bench may either be damaged or partially destroyed. In that case, USACE, the CVFPB, and SAFCA would work with NMFS and USFWS to mitigate the loss of riparian and SRA habitat according to the long-term management plan for Site 2-1, approved by NMFS and USFWS.

The design would deconstruct and rebuild the existing lower maintenance road where needed. The lower maintenance road is identified as the future alignment for the City of Sacramento's Two Rivers Trail, and the Proposed Action would re-establish the maintenance road to existing conditions. In some areas, established stands of riparian vegetation are currently growing along the bank line. This vegetation would be removed as part construction. The design would augment some existing revetment in a portion of the site and would require about 179,100 cubic yards (cy) of rock riprap to protect approximately 5,500 linear feet (from about RM 5.5 to RM 6.6) of levee. The design would impact about 10.4 acres of riparian vegetation, but would be replaced with approximately 12.9 acres of riparian vegetation after construction. The placement of rock below the ordinary high-water mark (OHWM) would affect approximately 9.6 acres of fish habitat.

2.3.4 Public Safety

The design of Site 2-1 would meet the USACE EP 1110-2-18 design specifications and would not require a vegetation variance. The bench width would provide the required 15-foot vegetation free zone along the waterside of the levee toe to provide access to emergency and maintenance vehicles (see Figure 2-5 for a view of the vegetation free zone). The lower levee road would also be maintained after construction to provide continued access for operations and maintenance. Placed rock supporting the planting bench would be at slopes of 2H:1V or flatter reducing the potential for pedestrians to become trapped and reduce fall hazards. The design of the IWM along the channel bottom and along the natural vegetation at the bank toe would be located on the planting bench spaced apart as described previously. The design of the planting bench would allow for natural alcoves to form without IWM remaining on the planting bench and not extending into the waterway. This design would prevent recreationists from getting caught on the IWM and would allow shore access within the alcoves (see Figures 2-6a and 2-6b for views of the alcoves and planting benches). The IWM would be at a depth

and velocity where recreational users of the river can wade out and around the IWM at typical recreational flows in the river. The lower levee road would also be maintained after construction to provide continued access for operations and maintenance.

2.3.5 Other Construction Considerations

2.3.5.1 Site Preparation and Mobilization

Site preparation would begin with trimming and/or removal of trees where construction access and activities would occur. In addition, site preparation would include removal and transplanting of an elderberry shrub. Trees would be removed November 2020–February 2021 before the nesting season of birds (see the *Construction Workers and Schedule* section below). The elderberry shrub would also be transplanted during this time period, because it would be dormant during this time. After these activities, mobilization would include the application of temporary best management practices for the control of off-site stormwater runoff and sedimentation, building temporary access roads, preparing staging areas, rerouting pedestrian and bicycle trails, and installing signage for traffic and alternate transportation routes that would be affected by construction activities (e.g., bicycle routes).

Vegetation clearing may need to occur for site access and construction purposes. Site preparation may also include the removal of submerged instream woody debris and fallen trees within the construction footprint. A turbidity curtain or other minimization measures approved by NMFS and USFWS would be installed prior to any in-water work conducted on the waterside of the levee. The work limits and staging areas would be fenced with orange construction fencing to protect sensitive habitat and to identify disturbance area limits.

2.3.5.2 Site Access, Haul Routes, and Staging Areas

For Site 2-1, haul routes for riprap, bedding, gravel, soil, and IWM would be from either Interstate 80 (I-80) to the north or from U.S. Highway 50 (U.S. 50) to the south. The neighborhoods along the routes would be notified of haul routes, ingress and egress points, staging areas, detours, lane closures (if any), and closed recreational areas (including bike paths) approximately one week prior to commencement of construction activities.

As depicted on **Figure 2-7** and **Figure 2-8**, haul trucks would travel to the staging area at the downstream end of Site 2-1 by traveling into the River Park neighborhood at Carlson Drive or along the existing Regional Transit bus line through the River Park neighborhood and unload materials at the staging area adjacent to Glenn Hall Park. Haul trucks leaving the staging area at this location would continue to use the Regional Transit route or Carlson Drive to exit the River Park neighborhood and use the H Street Bridge to access Howe Avenue back to the freeways. Approximately 65 to 75-percent of haul trucks would use the Carlson Drive route into and out of the River Park neighborhood with the remaining using the Regional Transit route to reduce traffic congestion on the local roadways. The Regional Transit route was chosen as an additional route because large vehicles (i.e., buses) already use the route and it has adequate lane width for the haul trucks. Some haul trucks may

travel along a portion of the top levee road upstream and then exit through the Seventh-Day Adventist Church property at 6045 Camellia Avenue and onto local roads back to H Street. Internal transfer dump trucks would utilize the top of the levee and the levee toe road to move material from the staging area where needed within the footprint of Site 2-1. Transfer dump trucks and other construction vehicles and equipment may exit through the Seventh-Day Adventist Church parking lot, except for Saturdays, or travel further upstream using the bike path and exit onto State University Drive or through E.A. Fairbairn Drive to exit and travel back to Site 2-1 using surface streets, as needed.

2.3.5.3 Construction Materials and Equipment

Construction materials are shown in **Table 2-1**, below. Sources of riprap would come from quarries located between 38 to 73 miles away. Planting bench soil would come from on-site soil excavated for the site repair designs, with some soil coming from off-site sources. Finally, IWM would come from approximately 100 miles away.

TABLE 2-1
CONSTRUCTION MATERIAL VOLUMES

Site	Material	Quantity
2-1	Riprap	179,100 cubic yards (cy)
	Planting bench soil	57,000 cy
	IWM	300 trees

Construction equipment required for the Proposed Action is shown in **Table 2-2**, below. Haul trucks are expected to be 32 cy in capacity to bring in riprap from quarries. At a minimum, 90 percent of all heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. No EPA Tier 0 engines would be used. All haul trucks would have 2010 or newer engines.

TABLE 2-2
CONSTRUCTION EQUIPMENT AND PERSONNEL UTILIZATION

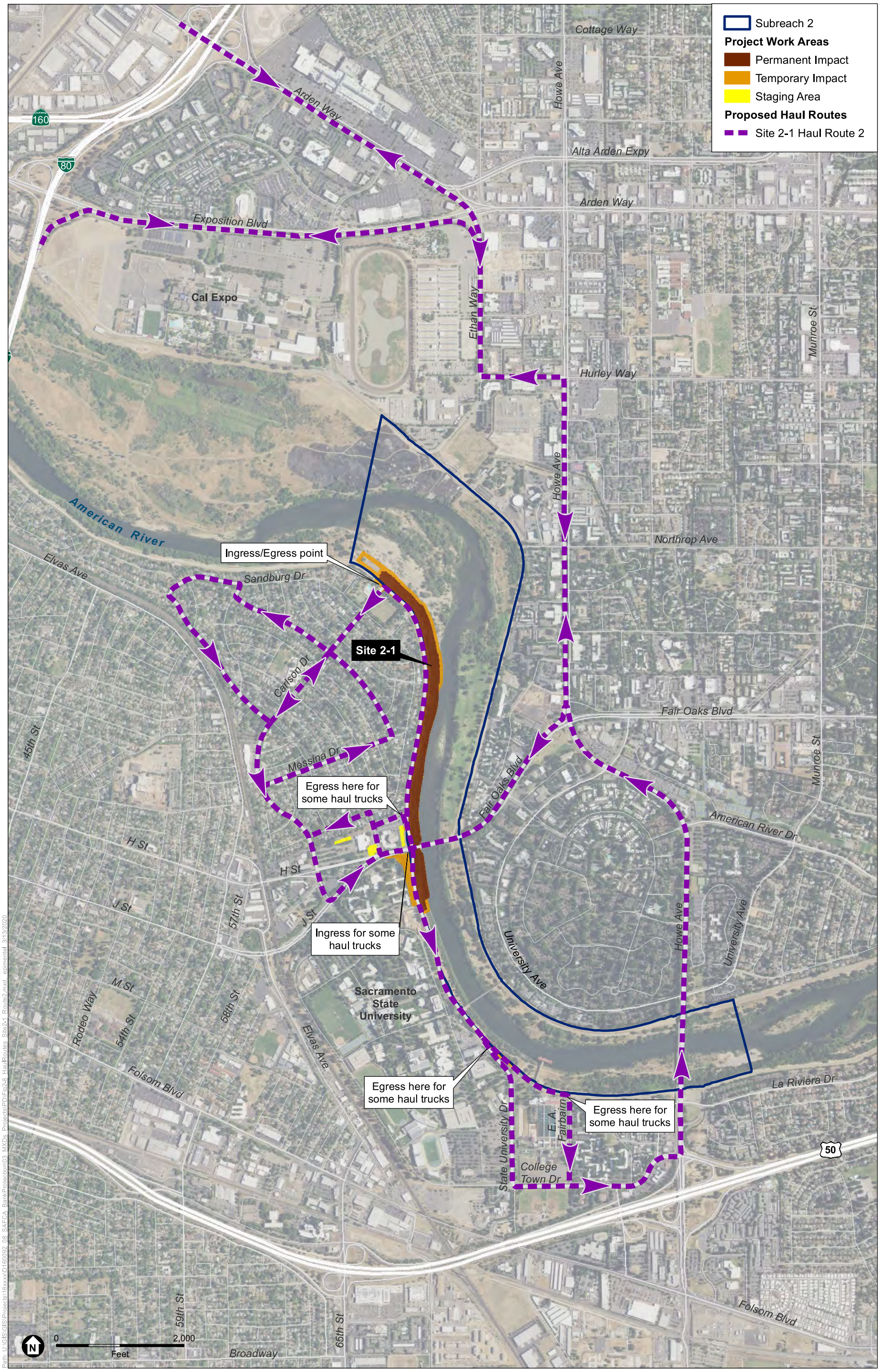
Type of Equipment	Max. Number Used per Day	Total Operation Days	Number of Workers
Excavator	26	120	65
Dozer	1	60	1
Front End Loader	5	120	5
Roller or grader	1	60	1
Dump Truck	48	120	48
Transfer Dump Truck	46	120	46
Flatbed Truck	1	60	1
4” pump	4	60	
Water truck	1	120	1
		Total	96

SOURCE: USDA, 2018; NHC, 2019; ESA, 2020

American River Common Features Contract 1

Figure 2-7
Site 2-1 Haul Route 1

ESA



SOURCE: USDA, 2018; NHC, 2019; ESA, 2020

American River Common Features Contract 1

Figure 2-8
Site 2-1 Haul Route 2

ESA

2.3.5.4 Construction Workers and Schedule

All workers would access the site by regional and local roadways. Construction hours would comply with City of Sacramento's noise ordinance 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. No work or hauling would take place on holidays without permission given by the City of Sacramento. The entire construction period is anticipated to take approximately one and a half years. Construction is expected to begin with removal of trees and shrubs beginning as early as November 2020. Mobilization of construction equipment, site preparation, and construction would begin as early as May 2021 and should take approximately 7 months to complete, with the last 6 months of post-construction related work (e.g., plantings, irrigation, stormwater control monitoring). **Table 2-3** provides anticipated activities and durations for major work phases at Site 2-1. However, this schedule may need to be extended if flood flows in spring and summer 2021 and/or 2022 would limit site access to construction equipment.

TABLE 2-3
ANTICIPATED PRIMARY CONSTRUCTION PHASES

Nov 2020–Feb 2021	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec 2021 to Summer 2022
Site 2-1								
Tree removal and pruning								
	Primary Earthwork; Delivery and Export of Haul Materials							
							Planting; Fine Grading	
								Planting; Monitoring/ Maintenance

NOTES:
1 Tree removal in January and February may be limited or determined to be infeasible due to high water levels near desired planting bench and toe protection areas.

SOURCE: CVFPB and SAFCA, 2019.

2.3.5.5 Demobilization and Cleanup

Any staging area would be restored to original pre-existing contour and condition or as agreed to by the property owner. To avoid erosion, staging areas would be hydro seeded and layered with wood mulch to prevent encroachment of invasive species. Any roads or other access areas damaged by construction would be repaired and restored to prior condition. All trash, excess construction materials, and construction equipment would be removed. Impacts to riparian habitat would be avoided to the extent feasible. Any unavoidable impact to riparian habitat would be mitigated off-site at ratios described in Chapter 3.

2.3.6 Operations and Maintenance

Once construction is complete and the performance standards have been met at the end of a three-year period, the non-Federal sponsor (the CVFPB) and LMA would be responsible for the operations and maintenance (O&M) of Site 2-1, and all land used for staging areas would return to original ownership. They would continue to monitor establishment for the remainder of a five-year establishment period. Regular O&M activities under the Proposed Action would consist of inspections, weed abatement, and removal of encroachments and high-hazard vegetation to ensure levee integrity and adequate levee access along the levee toe road. The levee maintenance road would be used, as it is currently used, to access the length of the levee during these activities and during high-flow events for flood-fighting purposes. O&M activities would not require heavier or noisier equipment than under current conditions. O&M inspections would consist of a patrol vehicle traveling along the levee and small machinery for weed abatement such as mowers and weed whackers/trimmers. These activities would only occur periodically, as under existing conditions. O&M activities would not introduce new land uses into the area.

2.3.7 Mitigation Sites

The ARCF GRR FEIS/FEIR included mitigation of impacts on vegetation within the American River Parkway. The adopted mitigation measures included transplantation of elderberry shrubs and, if needed, planting of compensation vegetation to account for the loss of vegetation from construction of erosion protection features. The adopted mitigation measures did not identify the sites where plantings would occur. The purpose of this section is to provide a description of the sites that have since been identified for transplanting elderberries and describe the methods to be used during the transplanting and post-transplantation monitoring and maintenance to inform the analysis of effects in Chapter 3, *Affected Environment and Environmental Consequences*. To the extent feasible, USACE would avoid and protect existing elderberry shrubs on-site when a 100-ft buffer or wider can be established and maintained around them. However, for erosion protection along the American River there would be unavoidable adverse effects that are proposed to be mitigated through a combination of on-site and off-site actions. As described in Section 2.3.2, *Design Objectives*, on-site mitigation has been integrated into the design of the levee erosion protection features to minimize adverse effects on sensitive species of concern. Additional efforts to fulfill ARCF off-site mitigation obligations are currently at various levels of planning or acquisition depending on the species and designated critical habitat. Conservation measures underway by USACE, the CVFPB, and SAFCA that are in the planning and acquisition stages may include but are not limited to: conservation banks, elderberry shrub relocation in the County of Sacramento's American River Parkway, and riparian plantings along the American River.

On-site mitigation would be located within Site 2-1 and includes planting benches and restoration of disturbed area as described in Section 2.3.2, *Design Objectives*. USACE, the CVFPB, and SAFCA are currently coordinating with the County of Sacramento to negotiate the transplanting of elderberry shrubs located within Site 2-1 permanent impact

footprint, to a permanent location in the American River Parkway. If the County of Sacramento allows for the elderberry shrub to be relocated, USACE would develop USFWS-approved site designs prior to any effects to valley elderberry longhorn beetle habitat. If desired transplantation sites in the American River Parkway cannot be identified in coordination with the County of Sacramento prior to start of levee construction, or if County of Sacramento approvals cannot be acquired, USACE would find a USFWS-approved conservation bank that is accepting elderberry shrubs. Locations of proposed mitigation sites for elderberry are shown on **Figure 2-9a** through **Figure 2-9c**.

2.3.7.1 Elderberry Shrub Transplanting Sites along the American River

The proposed mitigation sites are the Glenn Hall Park Mitigation Site (RM 4.9 Left Bank), the Rio Americano West Mitigation Site (RM 10.4 Right Bank), and the Rio Americano East Mitigation Site (RM 11.1 Right Bank). Additional sites are being pursued in anticipation of projected impacts under full implementation of the ARCF GRR. Any one or more of these transplantation sites may be utilized for relocating impacted elderberry shrubs from erosion protection measures along the American River, in order to provide sufficient space requirements necessary for the shrubs. Based on initial spatial investigations, it is anticipated that the identified elderberry transplantation sites in the American River Parkway would provide the following plantable acres provided in **Table 2-4**.

TABLE 2-4
ESTIMATED PLANTABLE AREA FOR RELOCATING ELDERBERRY SHRUBS AND ASSOCIATED RIPARIAN VEGETATION

Site	Site Area (acre)	Plantable Area (acre)
Glenn Hall Park (RM 4.9 L)	9.84	5.03
Rio Americano West (RM 10.4 R)	7.77	3.32
Rio Americano East (RM 11.1 R)	3.40	2.12
TOTAL	21.01	10.47

These mitigation sites were chosen because they were considered suitable for supporting riparian habitat and elderberry shrubs, and because of their limited existing habitat quality. Glenn Hall Park is dominated mostly by non-native woodland with areas of non-native grassland, native scrub, and native woodland. Rio Americano West is a mix of non-native grassland and native woodland with minor components of non-native woodland and native scrub. Rio Americano East consists mostly of non-native grassland with some native scrub and small patches of native and non-native woodlands.

Access and Staging

Each mitigation site would require temporary access for initial ground preparation and mitigation site establishment activities with permanent access for long-term maintenance. Temporary activities include access to the river for irrigation water and deer fence

installation, which would only be required during the establishment period. Maintenance activities are explained further below. A temporary staging area would also be established to house an 8-foot by 16-foot storage container, a portable toilet, and a wash station at each site.

Planting Site Elements

Site Preparation

Each site would be cleared of existing grasses and nonnative vegetation. Existing native trees, shrubs, and listed species would be protected in place with construction fencing. Nonnative trees would be cut down by a tree service crew with chainsaws and stumps would be removed with an excavator. Trees would be chipped and shredded with a chipper and hauled off-site with stumps for off-site disposal. Existing site grasses would be trimmed with hand held weed-eaters. Invasive plant species would be removed by hand and disposed off-site. The site (excluding the firebreak) would be ripped to 18 inches with a dozer and disked until the soil is friable and conducive to support native grass germination. The site would be graded to meet adjacent grades and provide proper drainage, then broadcast or drop seeded and sowed with a cultipacker. The area would then be mulched and tackified, and erosion control material would be applied throughout.

Irrigation

A temporary irrigation system would be installed for establishment and maintenance period of the transplant and associative plant material. An irrigation mainline no thinner than Schedule 40 would be installed for the establishment and maintenance period. Water pumped from the river edge would be applied by drip or spray irrigation. The irrigation system may be partially or entirely removed for seasonal high water flows. The pump system and fish screen would conform to the anadromous salmonid passage facility design criteria[4] issued by NMFS in July 2011.[5]

Fencing and Fire Breaks

A temporary 8-foot-high deer fence would be installed at the perimeter boundary of the project 15 feet off of access roads and trails. The deer fence posts would be installed 2 feet deep in the native soil without concrete. Deer fencing would be left in place for 3 growing seasons (years) following initial plant installation. Fences would be set off of the bike paths by 30 feet, 10 feet off of access roads, and 5 feet off of existing fencing. A 15-foot-wide cleared and leveled fire break would extend from the deer fence into the planting area.

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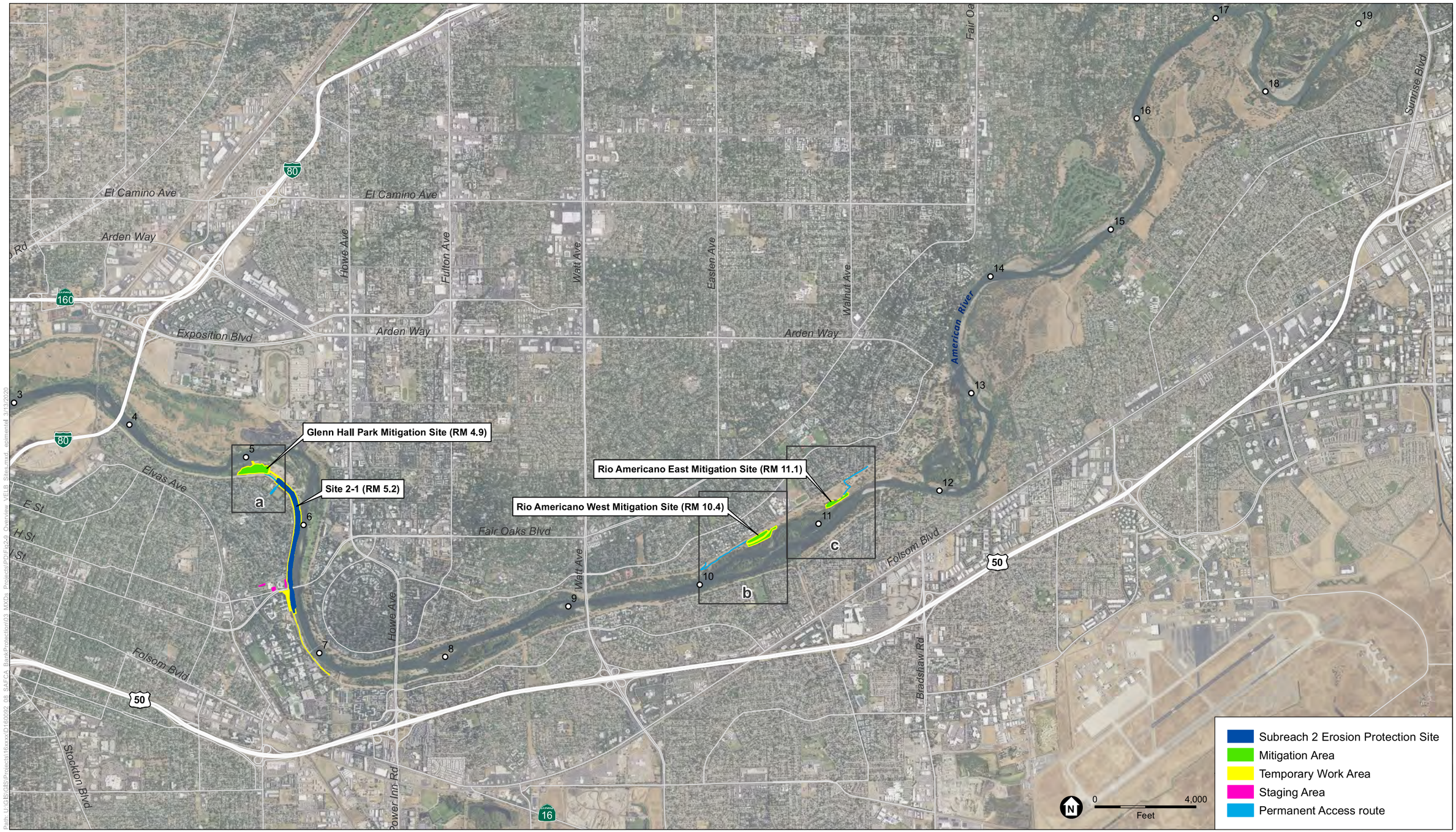
4 Perforated plate: Circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side. Slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1 /16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area. Approach velocity must not exceed 0.20 ft/s for passive screens.

5 National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. Northwest Region, Portland, OR. Available: https://www.dfw.state.or.us/fish/passage/docs/ fish_passage_design_criteria.pdf.



SOURCE: DigitalGlobe, 2018; NHC, 2019; USACE, 2020; ESA, 2020

American River Common Features 2016 Contracts 1 & 2

Figure 2-9
VELB Mitigation Sites

ESA

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SOURCE: DigitalGlobe, 2018; NHC, 2019; USACE, 2020; ESA, 2020

ARCF 2016 American River Contract 1

Figure 2-9a
Glenn Hall Park Mitigation Site

ESA

SOURCE: DigitalGlobe, 2018; NHC, 2019; USACE, 2020; ESA, 2020

ARCF 2016 American River Contract 1

Figure 2-9b
Rio Americano West Mitigation Site

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SOURCE: DigitalGlobe, 2018; NHC, 2019; USACE, 2020; ESA, 2020

ARCF 2016 American River Contract 1

Figure 2-9c
Rio Americano East Mitigation Site

ESA

Elderberry Transplanting

The transplants and associated plantings would be laid out in rows spaced 15 to 20 feet apart. The rows would sinuous to make the plantings appear more natural, rather than having the appearance of an orchard. Elderberry transplants would be clustered in groups from 3 to 12 shrubs along the rows, with transplant clusters taking up approximately half the planting area of the site. Clusters would be spaced apart to provide areas for associated plantings of other native plants. Canopy tree plantings would be arranged to maintain sufficient solar access for maintaining sufficient elderberry growth. Transplanting of the shrubs would be in compliance with the 2017 USFWS guidelines.[6]

Associative plants would be planted in 12-inch-wide by 12-inch-deep round holes. A wire mesh gopher cage would be installed in the hole prior to plant installation. Seedlings would be planted in the prepared holes and backfilled with the native excavated soil and a fertilizer tablet. Small bamboo stakes and guards may be installed on some species to aid growth and deter rabbit browsing. The areas between the planting rows would be seeded by broadcast, drill, or hydroseeding.

Proposed Planting Mix

The planting mix for proposed mitigation sites would include a number of native riparian and upland plants species, which may include valley oak (*Quercus lobata*), boxelder (*Acer negundo*), Fremont cottonwood (*Populus fremontii*), riparian shrubs, and grasses, and would be consistent with agency guidelines for valley elderberry longhorn beetle mitigation[7] and the American River Parkway Plan list of approved plants.[8]

Maintenance

Maintenance activities would start immediately following completion of the initial planting. The following activities would be performed throughout the year though some would vary according to weather and season: general clean-up maintenance of the sites would occur throughout the year, clean-up maintenance would generally include picking up trash, vandalism repairs, and the removal of used planting accessories (e.g., bamboo stakes, ties, browse guards). For watering maintenance, crews would connect the pump to the irrigation system for each irrigation cycle per the irrigation schedule described in **Table 2-5**. Crews would weed within the watering basins of the transplants and within an 18-inch radius of each woody and grass associated plant, so nonnative herbaceous growth would not compete for soil moisture per the schedule in Table 2-5. Maintenance crews would mow weeds to below six inches in height during the growing season. Mowing would conform to the schedule in Table 2-5.

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6 U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus). Sacramento, California. 28 pp.

7 U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus). Sacramento, CA. Available: https://www.fws.gov/sacramento/documents/VELB_Framework.pdf.

8 County of Sacramento. 2008. *American River Parkway Plan 2008*. p. 16. Terrestrial Resource Policy 3.2.1 Planning and Community Development Department. Available: https://regionalparks.saccounty.net/Parks/Documents/Parks/ARPP06-021909_sm.pdf.

TABLE 2-5
THREE-YEAR MAINTENANCE SCHEDULE FOR TRANSPLANT SITES IN THE AMERICAN RIVER PARKWAY

	Watering (Yrs 1 & 2: Mar 15-Nov 15) (Yr 3: Apr 1-Oct 31)		Weeding (Yrs 1-3: Mar 1-Sept 30)	Mowing (4 times per year)		Plant Replacement
Monitoring Year	**Transplants**	**Associated Plants**	**Transplants and Associates**	**Tractor**	**String Trimmer**	**Like species[1] (size and type) with fertilizer and mulch**
Year 1 (March 15-November 15)	50 gallons of water no more than 1 week apart	10 gallons per plant twice a week	4 times per year	80%	20%	Replant to original amount of planting installed
Year 2 (March 15-November 15)		30 gallons per plant every week to 10 days	4 times per year	60%	40%	Replant to original amount of planting installed
Year 3		50 gallons per plant every 10 to 14 days	4 times per year	40%	60%	No replanting
Firebreaks	Firebreaks are cleared of weeds and graded once per year					

NOTE:
[1] Adjustments may be made to species if it appears a particular species was not successful on a site

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CHAPTER 3
Affected Environment and Environmental Consequences

3.1 Introduction

3.1.1 Approach to the Analysis

For the purposes of NEPA, the assessment of potential effects takes into consideration the significance of the Proposed Action in terms of its context and its intensity (40 CFR 1508.27). To assist in the evaluation of context, USACE has determined that the affected region is the Project Area, which includes the American River Parkway, staging areas, levee improvement sites, habitat mitigation sites and construction haul routes. Intensity refers to the severity of the potential effect. The intensity of the potential effects for each resource topic is addressed under the "Impact Analysis" subsection in each resource topic discussed in the following sections of this chapter, starting with Section 3.2.

Each resource topic presented in this chapter includes a brief summary of the regulatory setting, environmental setting, methodology and basis of significance of environmental effects for resource topics analyzed in the ARCF GRR FEIS/FEIR. Supplemental information on existing environmental and regulatory settings is presented when needed to provide the context for the impact analysis and/or update the information, as relevant. The methodology used to evaluate impacts is described. The basis for determining the significance of impacts is presented, based on the criteria used in the ARCF GRR FEIS/FEIR analysis. Since publication of the ARCF GRR FEIS/FEIR, changes were made to Appendix G of the CEQA Guidelines (effective December 2018) that reflected changes to the CEQA statutes and related court decisions. To the extent that the topics or questions in the revised Appendix G are not reflected in the ARCF GRR FEIS/FEIR significant criteria, these topics and questions have been taken into consideration in the impact analysis.

For impacts associated with implementation of the Proposed Action, mitigation measures included in the ARCF GRR FEIS/FEIR are incorporated to reduce the level of significance of the impact. Where an impact of the Proposed Action is determined to require additional mitigation measure(s) beyond the ARCF GRR FEIS/FEIR, new or modified ARCF GRR FEIS/FEIR mitigation measures are recommended.

3.1.2 Resource Topics Not Discussed in Detail

Some resources were eliminated from further analysis in this Supplemental EA/EIR, because effects are negligible or the project refinements described in the Proposed Action would not create additional impacts on the resources beyond the scope of those evaluated in the ARCF GRR FEIS/FEIR. These resource topics are briefly described and dismissed from further analysis in the following discussions in Sections 3.1.2.1 to 3.1.2.4.

3.1.2.1 Land Use

The ARCF GRR FEIS/FEIR analysis found that no acquisition of private property would be required for levee improvements along the American River. All lands used for mitigation, staging, and construction access would be coordinated with the Sacramento County Department of Regional Parks for areas within the American River Parkway and would be repaired and revegetated to existing conditions following construction activities. Therefore, there would be no change to existing land uses within the American River Parkway and the effect of the project on land use was determined to be less than significant.

The proposed land uses in the Project Area would be consistent with adopted City and County of Sacramento General Plan policies related to flood risk reduction, land use designations, and zoning codes that apply to the Proposed Action. The levee improvements and staging areas would be located near residential areas along the American River, including areas in the River Park neighborhood, where residential land uses are generally located along the landside toe of the levee. Construction of levee improvements would occur within the existing levee corridor, and there are no proposed activities that would create a physical barrier within an established community. Lands where staging would occur are designated as Urban and Built-Up Land, Recreational, and Other Land. Therefore, the Proposed Action land use impacts would not differ from those identified in the ARCF GRR FEIS/FEIR and would be less than significant.

3.1.2.2 Mineral Resources

The ARCF GRR FEIS/FEIR study area was classified as either Mineral Resource Zone (MRZ) 1 or MRZ-3, classifications which the ARCF GRR FEIS/FEIR determined would not be affected by construction of the ARCF project. Therefore, the ARCF GRR FEIS/FEIR determined that the Preferred Alternative, including the Proposed Action, would cause no effect on this resource.

For the Proposed Action, the Project Area is classified as MRZ-2 (areas where adequate information indicates significant mineral deposits are present or likely present) and MRZ-3.[9] The MRZ-3 classification is not considered to be a regionally important mineral

[9] Dupras, D. 1999. *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California—Plates 1, 3, and 4*. Open-File Report 99-09. California Division of Mines and Geology, Sacramento, CA.

resource extraction zone. The Sacramento County General Plan indicates there are no locally designated important mineral resources at the location where project-related activities would occur.[10] The MRZ-2 sectors are all within the American River Parkway, which is a public regional recreational resource designated a Wild and Scenic River by the Federal Government and State of California. Because of this designation it is unlikely that any mineral extraction permits would be issued in the Project Area. Further, the Proposed Action would not preclude the extraction of minerals outside of the designated levee footprint and regulated encroachment easements. Therefore, mineral resource impacts would not differ from those described in the ARCF GRR FEIS/FEIR.

3.1.2.3 Geology

The ARCF GRR FEIS/FEIR analysis found that the preferred alternative, including the levee improvements that comprise the Proposed Action, would not expose people or structures to substantial effects involving earthquakes, landslides, and expansive soils, or locate levee improvements within the study area on unstable geologic units. Because the Proposed Action would cause no new or different impacts relative to earthquakes, landslides, and expansive soils than those analyzed in the Geology section of the ARCF GRR FEIS/FEIR, this Supplemental EA/EIR does not include a section on Geology. Effects of the Proposed Action related to soil erosion are analyzed below in Section 3.3, *Hydrology and Water Quality*.

3.1.2.4 Socioeconomics, Population, and Environmental Justice

Socioeconomics and Population

The ARCF GRR FEIS/FEIR analysis found that much of the study area is located immediately adjacent to established communities within the City of Sacramento, and the acquisition of some private properties in established communities would be required. Any disruptions to the community would be temporary and short-term during construction activities, and would be related to traffic congestion, noise, recreation, and leisure activities. Further, the Proposed Action would not require acquisition of private properties, other than temporary easements for use during construction activities, and would not result in a change in land use that would induce growth. For these reasons and those described in the ARCF GRR FEIS/FEIR, socioeconomic effects (including population and housing) were determined to be less than significant.

The Proposed Action would not include creation of any new developed land uses and would not remove or require the acquisition of private properties, including housing. The Proposed Action would include construction over one or two construction seasons, with an average labor force estimated to be about 50-60 people. The demand for construction workers can be easily met by the pool of available workers within the region. Consequently, the Proposed Action is not expected to induce population growth and the

[10] Sacramento County. 2011 (November). *Sacramento County General Plan of 2005–2030*. Available: http://www.per.saccounty.net/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx. Accessed December 11, 2019.

socioeconomics and population impacts of the action would not differ from those previously described in the ARCF GRR FEIS/FEIR.

Environmental Justice

The ARCF GRR FEIS/FEIR analysis found that the benefits of the project would extend to all of the Sacramento metropolitan area; disproportionate benefits or adverse effects applicable to any minority or low-income populations would not occur. Consequently, the ARCF GRR FEIS/FEIR found the overall project would have a less-than-significant adverse effect on minority and low income communities, if any at all. That finding applies as well to the Proposed Action, eliminating the need for an Environmental Justice section in this Supplemental EA/EIR.

Unauthorized camping by people who are facing homelessness frequently occurs along the LAR, although it is only rarely observed at Site 2-1 and the three elderberry mitigation sites. If unauthorized encampments are present in areas where construction would occur, USACE, the CVFPB, and the contractor would work with the County of Sacramento to notify the campers and remove their encampments while construction occurs. The construction sites would be fenced during construction to avoid unauthorized access for public safety.

The Proposed Action would have adverse effects on the natural and physical environment in various locations within the Project Area and are expected to affect all segments of the population at all income levels relatively equally. Consequently, Environmental Justice impacts would not differ from those described in the ARCF GRR FEIS/FEIR.

3.2 Visual Resources

3.2.1 Environmental Setting

3.2.1.1 Regulatory Setting

Chapter 5 of the ARCF GRR FEIS/FEIR described the status of compliance with the Wild and Scenic Rivers Act in detail, which applies to the aesthetic value of the American River, including visual resources.

3.2.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.15 (pages 293 through 312) describes the regional and local setting in the vicinity of the Project Area for the Proposed Action. The following provides additional information specific to the Project Area. Some site-specific conditions are described below. Views in the Project Area were provided in Section 3.15 (pages 295 to 297) of the ARCF GRR FEIS/FEIR and still apply to current views along the American River Parkway.

Levee Improvement and Staging Areas

The construction of the Proposed Action would occur on the water side of the levee in the American River Parkway and mostly out of view from the neighboring urbanized land uses on either side of the American River. Most of the staging areas would also be located out of view from residents or commuters on the land side of the levees; however, some of the smaller staging areas for Site 2-1 would be located on landside areas south of H Street within the Sacramento State campus in a heavily urbanized area and within view of residents and commuters. In addition, commuters and recreational users of the American River Parkway are able to view the areas where levee improvement and staging areas would be located.

Haul Routes

Portions of haul routes for construction of the Proposed Action would include urbanized areas on both sides of the American River, passing through the neighborhoods of Sierra Oaks, Campus Commons, and River Park; the California State University, Sacramento (CSUS) area; other residential and business areas along Howe Avenue, in the Arden Way/Cal Expo area; and areas north and south of the American River for access to the habitat mitigation sites. Residents, commuters, and workers along the residential roadways experience views of existing traffic, including some construction and worker vehicles. The views within the residential areas are considered to be of high visual quality and are primarily traveled by local residents, commuters, students, and recreationists.

3.2.2 Methodology and Basis of Significance

3.2.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.15.2 (page 305) of the ARCF GRR FEIS/FEIR. Evaluation of the project's potential impacts on visual resources was based on a review of scenic vistas and landscapes that could be affected by project-related activities. Visual contrasts were examined, which included evaluations of changes in form, size, colors, project dominance, view blockage, and duration of impacts. Other elements such as natural screening by vegetation or landforms, placement of project components in relation to existing structures, and likely viewer groups were also considered.

3.2.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.15.2 (page 305) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to visual resources if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings;

- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that consider the direct, indirect, or cumulative effects of degrading the visual character of a site. As a result, this analysis also takes into consideration the following additional or modified significance criterion:

- Substantially degrade the existing visual character or quality of public views of the site and its surroundings. Public views are those that are experienced from publicly accessible vantage points.

3.2.3 Impact Analysis

3.2.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure due to seepage, slope stability, overtopping, or other erosion concerns. The ARCF GRR FEIS/FEIR Section 3.15.3 (pages 293 through 313) analyzed the impacts on visual resources in the American River Project Area.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, vegetation and heavy erosion of soil along the American River Parkway would be lost. Flood fight activities would occur during a high flow emergency response resulting in emergency response with heavy-duty construction equipment in more areas than the Proposed Action. Flood fighting would result in the placement of large volumes of rock along the river banks to stop erosion and prevent further levee failure. The placement of rock would prevent or impede future growth of trees and vegetation on the levee slopes. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.2.3.2 Proposed Action

The ARCF GRR FEIS/FEIR Section 3.15 (pages 293 through 313) analyzed the impacts on visual resources for approximately 11 miles along the American River Parkway, including the Project Area. The analysis of impacts on visual resources from improvements to the levees for the Proposed Action would be the same as identified in the ARCF GRR FEIS/FEIR for the following:

1. Construction activities would result in short-term significant and unavoidable impacts on the visual character of the American River Parkway.

2. Loss of vegetation due to removal and construction of levee improvements would result in significant and unavoidable short-term effects on visual resources of the mature vegetation, but a less-than-significant long-term impact with mitigation once vegetation has been reestablished.

3. Areas along the levee that could erode would expose launchable rock which would result in a long-term adverse impact on visual resources to users within the American River Parkway (i.e., at the levee portion with the launchable rock trench).

The Proposed Action would result in the incorporation of more areas of plantings and design features than originally planned for in the ARCF GRR FEIS/FEIR that would reduce the intensity of erosion and launchable rock impacts on visual resources by providing design elements that would help to attenuate extreme erosion events and protect newly planted vegetation maturing along the bank of the levees. In addition, under the Proposed Action, USACE would plant additional elderberry plants and plants suitable for shaded riverine aquatic habitat within the Parkway to mitigate for effects of construction on these habitats. The plantings within the American River Parkway would result in an increase in vegetation that would improve the visual quality along the American River.

During construction of the Proposed Action, staging areas would have lighting for the purposes of security of construction equipment and stored materials resulting in new sources of nighttime light that would be visible by neighboring residences and vehicles passing near the staging areas, however these light sources would in some cases be adjacent to existing bright lights (e.g., along H Street, at the parking lot and tennis courts of Glenn Hall Park). However, some lights would potentially illuminate adjacent residences. This would result in a short-term temporary significant impact. However, Mitigation Measure VIS-1 would reduce the impact of nighttime light to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

The following summarizes ARCF GRR FEIS/FEIR mitigation measures (pages 311 to 312) that are incorporated into the Proposed Action:

- Trees would be planted along the outer portion of the rock trench where there is sufficient space (Mitigation Measures VEG-1 and SRA-1).

- Additional trees would be planted at other areas in the Parkway according to the Parkway Plan in the site to mitigate for the removal of the trees (Mitigation Measures VEG-2 and SRA-1).

Summary

The ARCF GRR FEIS/FEIR concluded that mitigation measures would reduce potential permanent impacts on visual resources to a less-than-significant level because once vegetation has fully developed, the visual quality of the Project Area would be similar to existing conditions. The ARCF GRR FEIS/FEIR also concluded that short-term impacts

on visual resources associated with construction within the American River Parkway would be significant and unavoidable. Construction of the Proposed Action would not result in short-term visual impacts that would be new or more severe than those addressed in the ARCF GRR FEIS/FEIR and, therefore, those construction-related short-term visual impacts are already adequately addressed in the ARCF GRR FEIS/FEIR.

The ARCF GRR FEIS/FEIR did not consider the use of nighttime lighting for staging areas, and, therefore, there would be a residual short-term temporary significant impact. Implementation of the following new mitigation measure would reduce impacts from the use of nighttime light under the Proposed Action to a less-than-significant level.

Additional Mitigation Measure for the Proposed Action

Implementation of additional Mitigation Measure VIS-1 would reduce impacts of new sources of nighttime lighting installed for security at the staging areas to a less-than-significant level.

> **Mitigation Measure VIS-1: Shield Temporary Nighttime Lighting.** USACE would require its construction contractors to ensure that all temporary lighting used for security of the staging areas is shielded or directed to avoid or minimize any direct illumination onto light-sensitive receptors located outside of the Project Area.

3.3 Hydrology and Water Quality

3.3.1 Environmental Setting

3.3.1.1 Regulatory Setting

Sections 3.4 and 3.5 of the ARCF GRR FEIS/FEIR (pages 81 and 96, respectively) identified Federal or State environmental laws and regulations that apply to regulating hazards and hazardous materials. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. The following are additional applicable regulations related to hydrology and water quality:

Federal

- Executive Order 11988, Floodplain Management.

State

- Sustainable Groundwater Management Act

3.3.1.2 Existing Conditions

Section 3.4 (pages 81 through 95) and Section 3.5 (pages 95 through 108) of the ARCF GRR FEIS/FEIR describe the regional and local setting in the vicinity of the Project Area. The following provides additional information specific to the Project Area not previously described.

The Project Area is in the Sacramento Hydrologic Basin Planning Area and Lower American Hydrologic Subarea, as designated by the Central Valley Regional Water Quality Control Board (RWQCB). Water quality standards for this basin are contained in the *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan) per Section 303 of the Clean Water Act. The Lower American River is listed as impaired for chlorodane, dichlorodiphenyltrichlorothane, diazinon, dieldrin, mercury, polychlorinated biphenyls, and an unknown toxicity.[11] The California Department of Water Resources (DWR) defines the Project Area as within the South American Subbasin (5-021.65).[12] This basin is designated as a High Priority basin under DWR's Sustainable Groundwater Management Act[13] for the purposes of meeting the groundwater sustainability goals of the State.

3.3.2 Methodology and Basis of Significance

3.3.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.4 (page 90) and Section 3.5 (page 101) of the ARCF GRR FEIS/FEIR. The analysis evaluates the potential flood-related impacts of the Proposed Action on water surface elevations in the American River and potential water quality impacts that could result from project construction activities and operations based on the construction practices and materials that would be used, the location and duration of the activities, and the potential for degradation of water quality or beneficial uses of Project Area waterways.

The analysis of the ARCF GRR FEIS/FEIR was supplemented with an analysis by Northwest Hydraulic Consultants of the effect of construction of Site 2-1 on flood water surface elevation at a 160,000 cfs flow. Hydraulic impacts of the design of Site 2-1 were evaluated by comparing model runs of existing and Proposed Action conditions in a calibrated two-dimensional depth-averaged hydrodynamic model referred to as the LAR HEC-RAS2D model. The LAR HEC-RAS2D model extends from the confluence of the Sacramento River upstream to the top of the leveed reach (about 13 miles). The model is based on topographic and bathymetric data collected in spring 2017, and the existing condition model was calibrated to the 2017 flow event. The model calibration was also verified with comparisons to the 1997 and 1986 flow events.[14]

The hydraulic effects analysis was also supplemented by analysis by the Hydraulic Design Section of the USACE Sacramento District, which conducted an analysis of the

[11] State Water Resources Control Board. 2010. *303(d) List of Impaired Waters*. https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrpt2018. Accessed December 2019.

[12] California Department of Water Resources. 2016. *Bulletin 118—Interim Update 2016*. https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118. Accessed December 2019.

[13] California Department of Water Resources. 2019. Sustainable Groundwater Management Act, SGMA Basin Prioritization Dashboard. Available: https://gis.water.ca.gov/app/bp-dashboard/p2/. Accessed December 11, 2019 and December 13, 2019.

[14] cbec. 2019. LAR Current Conditions DEM and 2D Model Development Project. Flood Flow Hydrodynamic Modeling Report. Prepared for SAFCA. March 2019.

hydraulic impacts of establishing the three elderberry mitigation sites, namely the Glenn Hall Park Mitigation Site, Rio Americano West Mitigation Site, and the Rio Americano Mitigation Site.[15] An existing two-dimensional hydraulic model in HEC-RAS version 5.0.7 for the Lower American River, with focus on Subreach 2 and modified for the design purpose of Subreach 2 by Northwest Hydraulic Consultants, was used to model water surface elevations at 160,000 cfs flow with and without the three elderberry shrub planting sites.

3.3.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.4 (page 92) and Section 3.5 (page 102) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to hydrology and water quality if it would:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner that would result in:

  (1) Substantial erosion or siltation on- or off-site, or

  (2) Substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;

- 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;

- Place housing within a 100-year flood hazard area;

- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

- Expose people or structures to a significant risk of loss, injury, or death involving flooding;

- Violate water quality standards or waste discharge requirements;

- Substantially deplete groundwater supplies or interfere substantially with ground water recharge;

- Substantially degrade water quality; or

- Alter regional or local flows resulting in substantial increases in erosion or sedimentation.

[15] U.S. Army Corps of Engineers. 2020. Water Surface Elevation Impacts Analysis of Valley Elderberry Planting of Subreach 2 on the Lower American River. Memorandum for Record. CESPK-EDH-D. March 26, 2020.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that include the following additional or modified significance criteria:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
  - Result in substantial erosion or siltation on- or off-site;
  - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
  - 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
  - Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Effects Not Evaluated Further

As described in the ARCF GRR FEIS/FEIR, groundwater is not likely to be encountered during excavation or trenching, based on 2013 Groundwater Update for the California Water Plan, groundwater could be as deep as 90 feet below ground surface, which is well-below construction activities. Further, water that is encountered during construction activities would be directly connected to water in the American River and not the underlying groundwater basin. Because groundwater is not likely to be encountered and would not be used as a source of water supply, the Proposed Action would not cause a substantial decrease in groundwater supplies. Furthermore, the Proposed Action does not include new impervious surfaces, other than replacement segments of existing surfaces damaged, that would interfere with groundwater recharge, or impede sustainable groundwater management, or increase runoff over existing conditions.

The Project Area is inland and not mapped in an area where tsunami or seiche are likely to occur,[16] therefore no further evaluation is necessary.

3.3.3 Impact Analysis

3.3.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would experience no change in the level of risk of flooding due to levee failure because of seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would occur to control further erosion and loss of the levee system. Timing and duration of control would correlate with other emergency flood fighting needs, but it is foreseeable that the release of sediment, vegetation, debris from urban dwellings and structure, and hazards and hazardous materials would contribute to exceeding applicable environmental thresholds for hydrology and water quality in the American River and further downstream in the Sacramento River. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. Moreover, due to the unpredictable nature of emergency responses, the application of best management practices to control all erosion and movement of other substances and debris into the American River and other waterways would be infeasible. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.3.3.2 Proposed Action

Sections 3.4 and 3.5 (pages 81 through 108) of the ARCF GRR FEIS/FEIR analyzed the impacts on Hydrology and Water Quality along 11 miles of the American River, including the Project Area.

Hydrology

The objective of the design of Site 2-1 would be to reduce the risk of a levee failure due to erosion. The American River levee system was originally intended to convey a discharge of 115,000 cubic feet per second (cfs) as directed in the Folsom Dam and Lake Water Control Manual (WCM). After flooding in 1986, an emergency objective release provision of 160,000 cfs was added to the WCM. The ARCF Project was modified by the Water Resources Development Act of 1999 to include additional necessary features for the American River so that it could safely convey an emergency release of 160,000 cfs. The

[16] California Geological Survey Department of Conservation, 2019. https://www.conservation.ca.gov/cgs/tsunami/maps#Interactive. Accessed December 11, 2019 and December 13, 2019.

ARCF GRR identified further improvements to the system to safely convey 160,000 cfs including addressing erosion concerns.

The ARCF American River Levee Raising Top of Levee Profile Design Documentation Report[17] completed as part of the WRDA 1999 authorization developed a new design top-of-levee elevation for the 160,000 cfs design flow. The new top of levee provided between 2 and 4 feet of freeboard above the expected 160,000 cfs water surface. The 160,000 cfs water surface is generally 3–4 feet above the 115,000 cfs water surface. Sections of levee that did not meet the new top of levee profile were raised to the new design top of levee profile. Existing sections of levee that met or exceeded the new profile were not adjusted.

The recent addition of the auxiliary spillway structure to Folsom Dam and further updates to the WCM have affected the annual chance exceedance (ACE) of flow events on the LAR. Recent hydrological modeling completed as part of the USACE Central Valley Hydrology Study has provided updated storm hydrographs for storm events of varying ACE values. **Table 3-1** summarizes the peak flow on the LAR for various ACE flow events. The objective release flow of 115,000 cfs will occur for increasing durations for the 4-precent ACE through the 1-percent ACE hydrologic events, while the 0.5-percent ACE is slightly above the 115,000 cfs release at 117,000 cfs. The 160,000 cfs emergency release has an ACE of about 0.3-percent.

TABLE 3.3-1
SUMMARY OF ANNUAL CHANCE OF EXCEEDANCE FLOWS AT NIMBUS DAM

Annual Chance of Exceedance	Peak Flow (cfs)
50%	20,500
10%	99,000
4%	115,000
2%	115,000
1%	115,000
0.5%	117,000
0.3%	160,000

Existing and Proposed Action conditions were simulated for the 115,000 cfs and 160,000 cfs flow events. The model was run for constant upstream and downstream boundary conditions. The Proposed Action conditions model adjusted the ground elevations within the Site 2-1 footprint to final design elevations. Hydraulic roughness values were also adjusted to calibrated values for the final conditions at Site 2-1 (i.e., the vegetated bench was assigned a roughness value consistent with calibrated values for nearby vegetated benches). The model was run for conditions consistent with expected

[17] U.S. Army Corps of Engineers. American River Project Common Features American River Levee Raising Sacramento County, California. Top of Levee Profile Design Documentation Report. May 2007.

immediate post-construction conditions (no established vegetation), and for conditions expected after vegetation matures.

Comparison of existing and Proposed Action conditions shows that construction of the levee improvements at Site 2-1 as part of the Proposed Action would cause a rise in water surface elevations upstream of the project site to the upstream end of the leveed reach. The rise is due to the placement of rock along the toe at Site 2-1 as part of the design. Alternatives to reduce this impact are limited as the existing channel is located against the levee. Placement of rock at the toe is required to reduce the risk of erosion at Site 2-1.

At 160,000 cfs (0.3 percent ACE), the increase in water surface elevation upstream of the leveed reach would be approximately 0.2 feet immediately after post-construction, and approximately 0.4 feet after vegetation at Site 2-1 matures. The water surface elevation impacts diminish further upstream but are greater than a 0.1-foot rise through the upstream end of the leveed reach. A rise of similar magnitude and extent is also shown in the 115,000 cfs (4 percent to 1 percent ACE) model run. For both runs, the levees still maintain adequate freeboard above the Proposed Action water surface elevations. Over 5 feet of freeboard would be maintained along the levees for the 115,000 cfs (1 percent ACE) and 117,000 cfs (0.5 percent ACE) water surface elevations, and therefore it is unlikely that the Proposed Action would cause the area of the Federal Emergency Management Agency's (FEMA's) high flood risk zone (i.e., 1 percent ACE flood map) to be expanded, and would not be in conflict with the State of California's 0.5 percent ACE urban flood protection requirement. The hydraulic impact would be less than significant, because people or structures would not be exposed to a significant additional risk of loss, injury, or death involving flooding.

USACE modeled the hydraulic effect of installing the three elderberry mitigation sites (i.e., Glenn Hall Park Mitigation Site, the Rio Americano West Mitigation Site, and the Rio Americano East Mitigation Site). The increase in water surface elevation at a discharge of 160,000 cfs was modeled using a 2D HEC-RAS model, assuming that the hydraulic roughness of the plantable area sites would be increased from 0.03 (grassland) to 0.07 (tall trees).[18] Water surface elevation increases as the result of increased roughness at the mitigation sites were modeled at 160,000 cfs at seven cross sections and seven centerline locations. At all centerline locations, the water surface elevation increases were less than the error tolerance of the model (0.05 feet). The water surface elevation at six of the seven cross sectional locations were less than 0.05 and at one location (at Rio Americano East, RM 11.3R) the water surface elevations would increase by up to 0.054 feet. The impact of the water surface rise would be less than significant, because people or structures would not be exposed to a significant risk of loss, injury, or death involving flooding.

[18] U.S. Army Corps of Engineers. 2016. *HEC-RAS. River Analysis System Hydraulic Reference Manual, Version 5.0.*

Water Quality

Construction of the Proposed Action would include ground disturbance activities that could expose soils to increased rates of erosion during storm events that could increase the rate of sedimentation in receiving waters. Sediment input into the river and turbidity caused by sediment-laden runoff or placement of rock in the river could cause a turbidity plume in the water that would affect aquatic organisms, including benthic organisms and fish. Use and storage of equipment could result in the accidental spills of fuel, oil, and other construction equipment related materials that could also be carried in stormwater runoff to receiving waters. As a result, there is the potential for construction activities to adversely affect receiving water quality.

A turbidity curtain and/or other turbidity minimization measure would be installed prior to any in-water work conducted on the waterside of the levee when there is a potential for listed fish within range. The work limits and staging areas would be fenced (orange construction fencing) to protect sensitive habitat, and to identify disturbance area limits. Coir or rice straw wattles or other sedimentation reducing measures would be installed where feasible downstream from any ground disturbing activities that have the potential to cause sediment runoff into the river.

Most of the construction activities would occur during dry summer months and when flows are lowest in the American River, likely June to October. Construction activities with ground-disturbances greater than one acre requires construction contractors to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. The construction contractor(s) would be required to obtain a NPDES Construction General Permit from the Central Valley RWQCB detailing construction activities, work areas, storage areas, work schedule, potential for run-on, run-off, and spill prevention measure to be implemented during construction activities. The SWPPP would describe the construction activities to be conducted, and best management practices (BMPs) that would be implemented to contain spills and prevent discharges of stormwater into waterways, including frequency of inspections and monitoring activities that would be required. BMPs could include but are not limited to straw waddles, geotextile and coir mats, tire wash stations at ingress/egress points to prevent tracking soil off-site onto roadways and entering the municipal stormwater collection system, and sand filter bags at stormwater collection inverts. Potential turbidity effects from landside construction (e.g., vehicle, staging, placement of construction equipment) would be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. Implementation of the SWPPP would reduce the effect sediment and construction related materials entering the stormwater system to a less-than-significant level. Following construction of the levee repairs BMPs would continue to be monitored and repaired/replenished while vegetation matures enough to stabilize surface soil in the Project Area.

As described above, the construction activities associated with the Proposed Action would not violate water quality standards or waste discharge requirements or otherwise

substantially degrade surface water quality or conflict with or obstruct implementation of a water quality control plan. Coordination with the Central Valley RWQCB would occur prior to construction through the Clean Water Act Section 401 water quality certification process to ensure that any appropriate measures would be implemented to protect water quality. Furthermore, through compliance with the NPDES Construction General Permit conditions would minimize stormwater runoff from affecting water quality. However, to ensure that stormwater runoff meets the standards of the Central Valley RWQCB Basin Plan for the American River, implementation of the proposed avoidance and minimization measures presented below would reduce impacts from construction of the Proposed Action to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measures are incorporated into the Proposed Action. Minor modifications of the measures are as follows.

- The low-flow period was generalized, because the duration and timing of the low-flow period is variable from year to year, and earthwork needs to start before the in-water work window (July 1–October 31).
- Stockpiling of soil on the land-side of the levee was removed, because it is not practical at Site 2-1.
- Turbidity monitoring measures were clarified to be compliant with the most recent Basin Plan turbidity objectives.

USACE and the CVFPB would implement the following measures to reduce temporary, short-term construction effects on water quality in the Project Area:

> **Mitigation Measure WQ-1: Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices.** As part of a turbidity monitoring program, the USACE contractor(s) would monitor turbidity in the adjacent water bodies, where applicable criteria apply, to determine whether turbidity is being affected by construction and to ensure that construction does not result in a rise in turbidity levels above ambient conditions, in accordance with the Central Valley RWQCB Basin Plan turbidity objectives. The monitoring program would be coordinated with the Central Valley RWQCB prior to construction, and would be implemented by the construction contractor. The contractor would be required to use BMPs, as described below, to prevent runoff from all construction areas. Environmental commitments included in the project to reduce the potential for impacts on water quality include: preparation of the SWPPP, and Spill Prevention Control and Countermeasures Plan (SPCCP).

Typical elements of the SWPPP are described below. In general, the following measures would be implemented as part of the SWPPP, as required by the State Water Resources Control Board for any construction activities that disturb more than 1 acre, to limit erosion potential.

- Conduct earthwork during low-flow periods (e.g., approximately May 1 through November 30).
- To the extent possible, stage construction equipment and materials on the landside of the subject levee reaches in areas that have already been disturbed.
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
- Install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of soil stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion. Stockpiling soil on the landside of the levee is not practical at Site 2-1.
- Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.
- Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established.
- During working hours, the construction activity would not cause the turbidity in the adjacent water body down current from the construction sites to exceed the Basin Plan turbidity objectives. Specifically, where natural turbidity is between 0 and 5 nephelometric turbidity units (NTUs), increases would not exceed 1 NTU; where natural turbidity is between 5 and 50 NTUs, increases would not exceed 20 percent; where natural turbidity is between 50 and 100 NTUs, increases would not exceed 10 NTUs; and where natural turbidity is greater than 100 NTUs, increases would not exceed 10 percent.[19] In determining compliance with these limits, appropriate averaging periods could be applied, provided that beneficial uses would be fully protected.

[19] California Regional Water Quality Control Board, Central Valley Region, Water Quality Control Plan (Basin Plan), Fifth Edition, Revised May 2018. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf.

- An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin.

- Implementation of this measure would comply with State and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containment facilities and practices such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures. Release of contaminants into adjacent water bodies could result in significant effects.

  Adherence to the environmental commitments and the implementation of the measures described in this section if spills were to occur would reduce or minimize this impact to a less-than-significant level.

Summary

Implementation of the mitigation measures in the ARCF GRR FEIS/FEIR, with the modifications described above, would reduce the impact of the Proposed Action on water quality to a less-than-significant level.

3.4 Vegetation and Wildlife

3.4.1 Environmental Setting

3.4.1.1 Regulatory Setting

Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. Regulations related to special status species have changed and are discussed in Section 3.6*, Special Status Species*. There has been no change to the applicable listed regulations related to Vegetation and Wildlife. Additional detail on the American River Parkway Plan is provided here.

The 2008 American River Parkway Plan is the City and County of Sacramento's management plan for the LAR and was adopted by the City and County of Sacramento, and by the State Legislature through the Urban American River Parkway Preservation Act, Public Resources Code Section 5840. It is a policy document that provides guidance for land use decisions affecting the American River Parkway, specifically for its preservation, use, development, and administration. The Plan's purpose is to ensure preservation of the naturalistic environment while providing limited development to

facilitate human enjoyment of the Parkway. The Parkway Plan also acts as the management plan for the Federal and State Wild and Scenic Rivers Acts.

3.4.1.2 Existing Conditions

Section 3.6 (pages 109–116) of the ARCF GRR FEIS/FEIR describes the regional and local setting in the vicinity of the Project Area for the Proposed Action. Field data for vegetation and wildlife were collected for the entire Subreach 2 area (**Appendices A and B**) and are used to describe the existing conditions at Site 2-1, considering both species observed at the site as well as species with potential to occur. An assessment of the habitats and species occurring in the subreach provides an appropriate assessment unit for describing habitat types and potentially occurring wildlife species at Site 2-1. The following provides additional information specific to Subreach 2.

Habitat Types in Subreach 2

The ARCF GRR FEIS/FEIR described the habitat types present within the American River Parkway as including riparian, oak woodland, open water, ruderal herbaceous, wetlands, agriculture, and shaded riverine aquatic (SRA) habitat. An additional reconnaissance-level habitat assessment survey was conducted in 2019 (see Appendix A) to identify the habitat types present specifically within Subreach 2. The surveyors observed the following natural communities (i.e., habitat types) in Subreach 2: riverine (open water), annual grassland, mixed oak woodland, upland scrub, riparian scrub, and riparian woodland (**Figure 3.4-1a** through **Figure 3.4-1c**). Non-native woodland is also present. The distribution of these communities and the common species observed in each are described below.

Annual Grassland

Grasslands can be found throughout Subreach 2, typically in upland areas, and consist mainly of non-native grasses and forbs. (The ARCF GRR FEIS/FEIR referred to annual grasslands as "ruderal herbaceous.") Common grass species observed in this community include wild oat (*Avena barbata*), bromes (*Bromus diandrus*, *B. hordeaceus*), foxtail barley (*Hordeum murinum*), rattail sixweeks grass (*Festuca myuros*), Bermuda grass (*Cynodon dactylon*), and Pacific bentgrass (*Agrostis avenacea*).

An assemblage of native and non-native forbs is also present in these grasslands. Some common native forbs observed include Canada horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), ragweed (*Ambrosia psilostachya*), elegant clarkia (*Clarkia unguiculata*), and turkey mullein (*Croton setiger*). Among the many common non-native forbs observed are hairy vetch (*Vicia villosa*), cutleaf geranium (*Geranium dissectum*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), poison hemlock (*Conium maculatum*), wild radish (*Raphanus sativus*), wild mustard (*Hirschfeldia incana*), rose clover (*Trifolium hirtum*), and white sweet clover (*Melilotus indicus*).

Annual grassland provides little cover for most wildlife, yet numerous species forage and several species breed in this habitat type. Grasslands attract bumble bees and other insects that rely on flowering grassland species. They also attract reptiles and amphibians such as western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and gopher snake (*Pituophis melanoleucus*); and birds such as California quail (*Callipepla californica*), western bluebird (*Sialia mexicana*), and lesser goldfinch (*Carduelis psaltria*).

Common small mammals expected to occur in grasslands in Subreach 2 include western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Mus musculus*), California vole (*Microtus californicus*), black-tailed jackrabbit (*Lepus californicus*), and Botta's pocket gopher (*Thomomys bottae*). Small rodents, reptiles, and invertebrates attract raptors (birds of prey) including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Accipiter striatus*), and American kestrel (*Falco sparverius*), and special status birds such as white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), and Swainson's hawk (*Buteo swainsoni*).

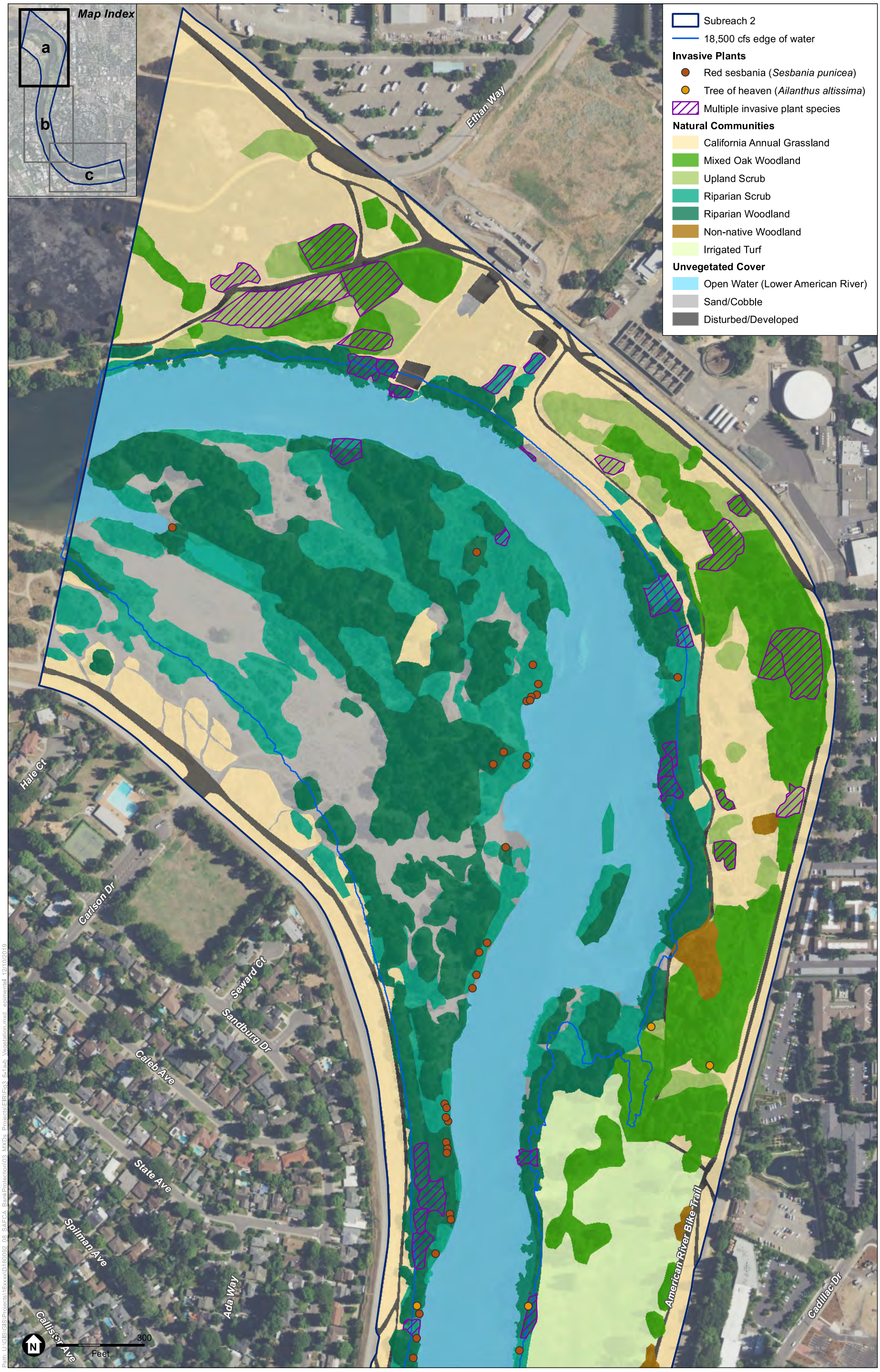
Non-native grasslands are important foraging grounds for aerial and ground-foraging insect eaters such as *Myotis* bat species and pallid bats (*Antrozous pallidus*). Larger mammals such as black-tailed deer (*Odocoileus hemionus*) and coyote (*Canis latrans*) were observed moving through grasslands in Subreach 2.

Mixed Oak Woodland

Oak woodlands in Subreach 2 are dominated by coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), and interior live oak (*Q. wislizeni*). Northern California black walnut (*Juglans hindsii*) and California bay (*Umbellularia californica*) are less frequent contributors to the tree canopy.

The oak woodlands in Subreach 2 support a variety of understory plant species and vegetative structures. When no shrub layer is present, annual grassland is the dominant understory and includes the common species described above under "Annual Grassland." When oak woodlands support understory shrubs, common native shrubs observed include California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and coyote brush (*Baccharis pilularis* ssp. *consanguinea*). Himalayan blackberry (*Rubus armeniacus*) was the only common non-native shrub observed in the understory of oak woodlands.

Animals present in oak woodland habitat in Subreach 2 include those that rely heavily on acorns, such as the acorn disseminators western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), and western gray squirrel (*Sciurus griseus*). Wild turkey (*Meleagris gallopavo*), California quail, and black-tailed deer use acorns as a major food source.

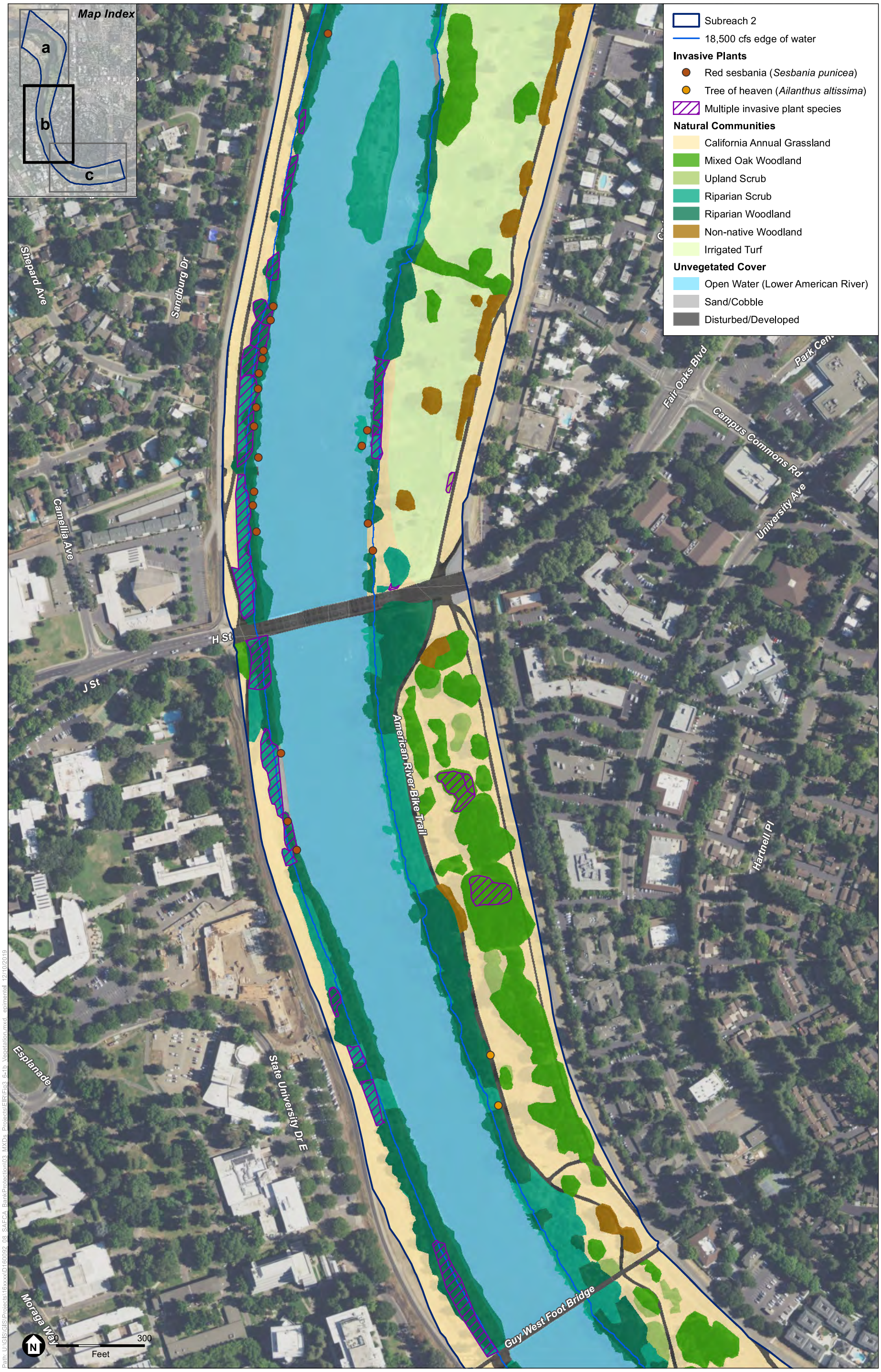


SOURCE: NHC, 2018; ESA, 2019

ARCF 2016 American River Contract 1

Figure 3.4-1a
Natural Communities of the Lower American River Subreach 2

ESA



SOURCE: NHC, 2018; ESA, 2019

ARCF 2016 American River Contract 1

Figure 3.4-1b
Natural Communities of the Lower American River Subreach 2

ESA

Subreach 2
18,500 cfs edge of water

Invasive Plants
- Giant reed (*Arundo donax*)
- Red sesbania (*Sesbania punicea*)
- Tree of heaven (*Ailanthus altissima*)
- Multiple invasive plant species

Natural Communities
- California Annual Grassland
- Mixed Oak Woodland
- Upland Scrub
- Riparian Scrub
- Riparian Woodland
- Non-native Woodland
- Irrigated Turf

Unvegetated Cover
- Open Water (Lower American River)
- Sand/Cobble
- Disturbed/Developed

Map Index
a
b
c

Guy West Foot Bridge
University Ave
American River Bike Trail
University Park Dr
River Chase Cir
Howe Ave
State University Dr E
La Riviera Dr

N
0
300
Feet

Path: U:\GIS\GIS\Projects\16xxxx\D160092_08_SAFCA_BankProtection\03_MXDs_Projects\EIR\Fig3_6-1c_Vegetation.mxd_ejmental 12/10/2019

SOURCE: NHC, 2018; ESA, 2019

ARCF 2016 American River Contract 1

Figure 3.4-1c
Natural Communities of the Lower American River Subreach 2

ESA

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Deer also use the foliage of several hardwoods. Oak titmouse (*Baeolophus inornatus*), dark-eyed junco (*Junco hyemalis*), ash-throated flycatcher (*Myiarchus tuberculifer*), northern flicker (*Colaptes auratus*), lesser goldfinch, and great horned owl (*Bubo virginianus*) nest in woodland habitat. Cavity nesters include western bluebird and ash-throated flycatcher. Special status birds such as Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*A. striatus*) are known to nest in these woodlands. The pallid bat, also a special status species, may inhabit these woodlands as well.

Amphibians and reptiles can be found on the woodland floor where moisture is retained under fallen wood and in tree crevices. Among these species are California toad (*Anaxyrus boreas halophilus*) and Sierran treefrog (*Pseudacris sierra*). Reptiles include western fence lizard, southern alligator lizard (*Elgaria multicarinata* ssp. *multicarinata*), ringneck snake (*Diadophis punctatus*), gopher snake, western rattlesnake (*Crotalus viridis helleri*), and California king snake (*Lampropeltis zonata*).

Upland Scrub

Upland scrub habitat in Subreach 2 consists of areas dominated by native and non-native shrubs that have no tree cover and contain the common herbaceous species described above for annual grassland. Common native shrub species observed are coyote brush, blue elderberry, California rose, California blackberry, Himalayan blackberry, California grape (*Vitis californica*), and western redbud (*Cercis occidentalis*).

Many of the wildlife species described above for oak woodland also use adjacent upland scrub areas for foraging or cover.

Riparian Scrub

Riparian scrub habitat in Subreach 2 consists of shrub-dominated areas that are subject to hydrologic influence from the American River. These areas are dominated by sandbar willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), common button bush (*Cephalanthus occidentalis*), California rose, California blackberry, California wild grape, blue elderberry, and Himalayan blackberry.

Areas that experience high flows typically do not support herb species, and cobbles tend to be the dominant ground cover. Areas that experience slower flows support a variety of herb species including mugwort (*Artemisia douglasiana*), marsh brittlegrass (*Setaria parviflora*), Santa Barbara sedge (*Carex barbarae*), horsetails (*Equisetum arvense* and *E. hymale* ssp. *affine*), rushes (*Juncus balticus*, *J. bufonius*, *J. effusus*, and *J. patens*), beardless wildrye (*Elymus triticoides*), and water iris (*Iris pseudacorus*).

Riparian scrub supports large numbers of insects and attracts passerine birds, including several species of flycatchers, warblers, and hummingbirds. In addition, a number of Federally listed species rely on riparian corridors, including the western yellow-billed cuckoo (*Coccyzus americanus*).

Riparian Woodland

Riparian woodlands in Subreach 2 are tree-dominated areas that are subject to frequent hydrologic influence from the American River. These areas are dominated by Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), red willow (*S. laevigata*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), and/or California sycamore (*Platanus racemosa*). Pacific willow (*Salix lasiolepis*), valley oak, American elm (*Ulmus americana*), and black locust (*Robinia pseudoacacia*) are less frequent contributors to the tree canopy. Riparian woodlands support a variety of shrubs and herbs similar to those described above for the riparian scrub community.

Many wildlife species depend on riparian woodlands for water, food, and cover. Several raptor species—red-shouldered hawk, Cooper's hawk, great horned owl, and the State-listed Swainson's hawk—build their nests in the crowns of cottonwood, valley oak, and other large trees that grow on the landside and waterside of the levees in Subreach 2. Natural cavities and woodpecker holes provide nesting sites for cavity-nesting species, including wood duck (*Aix sponsa*), American kestrel, tree swallow (*Tachycineta bicolor*), western bluebird, and western screech owl (*Megascops kennicottii*).

Riverine

Riverine habitat consists of inundated areas, including the American River. Such areas support some submerged non-native aquatic vegetation: Brazilian waterweed (*Egeria densa*), curly pondweed (*Potamogeton crispus*), and water primrose (*Ludwigia hexapetala*). Many bird species use open waters for resting, hunting, and escape cover. Common species include gulls, waterfowl, and osprey (*Pandion haliaetus*). Shorelines provide hunting grounds for wading birds such as herons and egrets, and for kingfisher, waterfowl, and shorebirds. Flycatchers, swallows, and other insectivorous birds catch their prey over water. Mammal species that occur in this habitat type include river otter (*Lontra canadensis*) and beaver (*Castor canadensis*). Instream woody structure along the shoreline of riverine habitat provides perching habitat for bird species such as black phoebe (*Sayornis nigricans*) and resting or basking habitat for other species (e.g., western pond turtle [*Actinemys marmorata*] and river otter). Within Subreach 2, the cover percentage of instream structure along the average summer/fall shoreline ranged from 5 percent to 73 percent.[20] These percentiles fluctuate seasonally; they are typically higher for most segments of the American River within Subreach 2 in winter and spring when flows are greater.

Non-native Woodland

Several locations in Subreach 2 are dominated by non-native trees. These single-species tree stands consist of either Australian pine (*Casuarina equisetifolia*), black locust, or tree of heaven (*Ailanthus altissima*). With the exception of black locust stands, non-native woodlands in Subreach 2 do not support a shrub understory, and they are dominated by the common herbaceous species described above for annual grassland. Some black locust stands support blue elderberry shrubs in the understory.

[20] Environmental Science Associates. 2019. *Lower American River Subreach 2: Resource Assessment*. Prepared for Sacramento Area Flood Control Agency. October 2018.

Bird species that may use this habitat types include scrub jay, Northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), California quail, and western bluebird. Common mammals include black-tailed deer, raccoon (*Procyon lotor*), and opossum (*Didelphis virginiana*). Gopher snake and western fence lizard also occur in this habitat type.

Invasive Plant Species

In Subreach 2, invasive non-native plant species are present in all plant communities, but most commonly in and adjacent to annual grasslands. Areas dominated by non-native vegetation are generally associated with recent human disturbance and include dredged mine tailings, maintained levee slopes, landscaped areas, and areas subject to frequent flood inundation or scour. Non-native weeds dominate some areas, especially along the side slopes of the levees. To a lesser degree, invasive plants are also found in other plant communities such as riparian and oak woodland.

The California Invasive Plant Council maintains an inventory that categorizes non-native invasive plants that are determined to be a threat to the state's wildlands. The categorization is based on an assessment of the ecological impacts of each plant based on the best available knowledge of invasive plant experts. **Table 3.4-1** lists each non-native plant species encountered in Subreach 2 during biological resources reconnaissance surveys and its rating in the California Invasive Plant Council inventory.

Wetlands and Other Waters

In July 2019, Environmental Science Associates biologists conducted an aquatic resources delineation for Subreach 2. The delineation used the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual*,[21] hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*,[22] hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed. In addition, the *Guide to Ordinary High Water Mark (OHWM) delineation for non-perennial streams in the western mountains, valleys, and coast region of the United States*[23] was used to identify the lateral limits of the American River. The biologists identified a total of 37.57 acres of potential waters of the United States: 22.43 acres of perennial riverine (i.e., American River) and 15.04 acres of seasonally flooded forested wetlands. A 0.10-acre drainage ditch was also documented in Subreach 2.

[21] Environmental Laboratory, 1987. *Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1)*. U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS.

[22] U.S. Army Corps of Engineers, 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

[23] U.S. Army Corps of Engineers, 2014. *A guide to ordinary high water mark (OHWM) delineation for non-perennial streams in the western mountains, valleys, and coast region of the United States*. Technical Report ERDC/CRREL TR-14-13. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

TABLE 3.4-1
INVASIVE PLANT SPECIES IN SUBREACH 2

Common Name	Scientific Name	Cal-IPC Rating
Australian pine	*Casuarina equisetifolia*	Watch
Bermuda grass	*Cynodon dactylon*	Moderate
Black locust	*Robinia pseudoacacia*	Limited
Brazilian waterweed	*Egeria densa*	High
Chinese tallow tree	*Triadica sebifera*	Moderate
Common fig	*Ficus carica*	Moderate
Curly pondweed	*Potamogeton crispus*	Moderate
Cutleaf geranium	*Geranium dissectum*	Limited
English ivy	*Hedera helix*	High
Foxtail barley	*Hordeum murinum*	Moderate
Giant reed	*Arundo donax*	High
Himalayan blackberry	*Rubus armeniacus*	High
Italian thistle	*Carduus pycnocephalus*	Moderate
Mexican fan palm	*Washingtonia robusta*	Moderate
Pacific bentgrass	*Agrostis avenacea*	Limited
Pampas grass	*Cortaderia selloana*	High
Poison hemlock	*Conium maculatum*	Moderate
Rattail sixweeks grass	*Festuca myuros*	Moderate
Red sesbania	*Sesbania punicea*	High
Ripgut brome	*Bromus diandrus*	Moderate
Rose clover	*Trifolium hirtum*	Limited
Soft brome	*Bromus hordeaceus*	Limited
Spanish broom	*Spartium junceum*	High
Tree of heaven	*Ailanthus altissima*	Moderate
Tree tobacco	*Nicotiana glauca*	Moderate
Water iris	*Iris pseudacorus*	Limited
Water primrose	*Ludwigia hexapetala*	High
Wild mustard	*Hirschfeldia incana*	Moderate
Wild oat	*Avena barbata*	Moderate
Wild radish	*Raphanus sativus*	Limited
Yellow star thistle	*Centaurea solstitialis*	High

NOTES:
Cal-IPC = California Invasive Plant Council
[a] High = species have severe ecological impacts on the physical processes of plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
Moderate = species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, although establishment is generally dependent on ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
Limited = species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
Watch = species have been assessed as posing a high risk of becoming invasive in the future.

3.4.2 Methodology and Basis of Significance

3.4.2.1 Methodology

This analysis uses the same methodology described in Section 3.6.2 (pages 116–117) of the ARCF GRR FEIS/FEIR. However, the second significance threshold was expanded to include "State-protected wetlands," to reflect an update made to Appendix G of the State CEQA Guidelines for 2019. Impacts on vegetation and wildlife resources in Subreach 2 were evaluated based on data collected from biological resources surveys, and other resources such as aerial imagery and the American River Parkway Plan (Parkway Plan). The goals and objectives of the Parkway Plan were also considered for the impact analysis, along with the effects of constructing the alternatives on those goals and objectives. Impacts on vegetation and wildlife were evaluated based on construction activities and on habitat changes expected to occur after construction of the project.

3.4.2.2 Basis of Significance

The Proposed Action would result in a significant effect related to vegetation and wildlife if it would result in any of the following:

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial effects on a sensitive natural community, including State- and Federally protected wetlands and other waters of the United States, as defined by Section 404 of the Clean Water Act.
- Substantial reduction in the quality or quantity of important habitat, or access to such habitat for wildlife species.
- Substantial conflict with the American River Parkway Plan or the Sacramento County Tree Preservation Ordinance.
- Substantial adverse effects on native wood habitats in the American River Parkway, resulting in the loss of vegetation and wildlife.

3.4.3 Impact Analysis

3.4.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure due to seepage, slope stability, overtopping, or other erosion concerns. Section 3.6.3 (pages 117–118) of the ARCF GRR FEIS/FEIR analyzed impacts on vegetation and wildlife under the No Action/No Project Alternative. The ARCF GRR FEIS/FEIR stated that it would be speculative to consider that additional work would be conducted to address seepage, slope stability, overtopping, and erosion issues. If a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure.

The ARCF GRR FEIS/FEIR determined that given the lack of specific erosion protection measures, levees along the American River would continue to erode, resulting in the loss of bankside vegetation. Furthermore, flood fighting activities that would occur during a high-flow emergency response could involve the rapid placement of large rock along the levee slope, which would adversely affect future vegetation growth along the American River levees. The ARCF GRR FEIS/FEIR determined that as levees and berms along the American River erode, riparian habitat and native wood habitats would be lost. In addition, polluted flood flows could disrupt or contaminate Federally protected wetlands, including seasonally flooded forested wetlands. Those trees that would be lost but are protected by local tree ordinances would likely trigger major post-flood recovery mitigation. The No Action Alternative would also be inconsistent with the Parkway Plan, which calls for bank scour and erosion to be "proactively managed" to protect public infrastructure, habitat, and recreational resources. In addition, should flood fighting activities be insufficient to prevent levee failure, a large area of vegetation and terrestrial wildlife could be swept away and lost. The analysis of the ARCF GRR FEIS/FEIR also considered that if a large-scale levee failure would result in a loss of vegetation, the affected area would experience a substantial reduction in the quality and quantity of habitats for wildlife species. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.4.3.2 Proposed Action

Section 3.6.4 (pages 121–123) of the ARCF GRR FEIS/FEIR analyzed impacts on vegetation and wildlife along the entire leveed stretch of the American River. The ARCF GRR FEIS/FEIR assessed effects on nesting birds, other terrestrial wildlife, and sensitive habitat types, including wetlands, and considered conflicts with local plans and policies including the Parkway Plan. The ARCF GRR FEIS/FEIR further evaluated the specific effects of launchable rock trenches and bank protection, including the loss of riparian habitat that would occur during their installation. The ARCF GRR FEIS/FEIR estimated that up to 65 acres of riparian habitat would be removed throughout the lower American River, including reaches not within the scope of the current Proposed Action. In addition, the ARCF GRR FEIS/FEIR determined that construction work would also occur on grassland habitats within the Parkway.

The analysis in the ARCF GRR FEIS/FEIR determined that constructing bank protection would result in the loss of SRA habitat, because such construction would involve removing grasses, shrubby vegetation, and instream woody material, but it was anticipated that large trees would be protected in place during construction to the extent possible. In addition, the analysis determined that although the impacts of bank protection work would be partially self-mitigated with the installation of a waterside planting bench and removal of instream woody material would be avoided to the extent possible, some impacts would remain because there would be a lag time between when the trees were planted and when they would mature to a point that they would provide the same functional values as the vegetation removed during construction. Although the design of

the proposed action would allow for the retainage of some large riparian trees, others would be removed, reducing the shade and organic input to the adjacent aquatic habitat. Similarly, most existing instream woody material would be removed. The on-site replacement habitat would be designed to provide both terrestrial riparian habitat values as well as adjacent aquatic habitat (SRA habitat) values. Instream woody material in the form of trees and logs, held in place with ropes, are included in the design. However, shade and aquatic vegetation would require a substantial period of time to develop to the same values as are present under existing conditions. The ARCF GRR FEIS/FEIR determined that the short-term impact on both riparian and SRA habitats would be significant and unavoidable, but that long-term impacts would be mitigated by on-site and off-site riparian and SRA habitat creation.

Under the Proposed Action, impacts from construction activities to install exposed and buried rock structures, and a planting bench would include the loss of 6.18 acres of riparian woodland and 2.29 acres of riparian scrub in the footprint of the Permanent Project Area (**Table 3.4-2**). Riparian habitat would also be damaged and removed within construction access areas and haul routes, resulting in a temporary removal of 1.49 acres of riparian woodland and 0.47 acres of riparian scrub habitat. The permanent and temporary impacts of the Proposed Action would be significant. Implementation of Mitigation Measures VEG-1, VEG-2, VELB-1, and SRA-1 would reduce this impact to a less-than-significant level, because of a combination of avoidance, minimization, and compensation by creation of on-site and off-site riparian habitat.

As described in Section 3.6, *Special Status Species*, riparian vegetation along the lower American River provides habitat for the valley elderberry longhorn beetle (VELB). USACE also assumed that this riparian corridor was suitable habitat for the western yellow-billed cuckoo. To mitigate the impact on habitat for these species, USACE would create replacement riparian habitat at ratios of 3:1 (acres replaced to acres affected) and 2:1, respectively. A total of 8.47 acres of riparian habitat would be affected in the Permanent Project Area and up to an additional 1.96 acres in the Temporary Project Area (construction access areas and haul routes (some of the riparian habitat in this work area may be avoided) which includes habitat for VELB and western yellow-billed cuckoo. To mitigate these impacts, USACE would create a total of 20.86 acres of riparian habitat, which would include 12.86 acres of on-site riparian habitat in the Permanent Project Area. In addition, 8.00 acres of off-site riparian habitat would be created (see Section 3.6, *Special Status Species*). Construction of Site 2-1 would affect 6.62 acres of non-native grassland in the Permanent Project Area, which would be replaced with 4.69 acres of native grassland and 0.12 acres of emergent wetland which is a ratio of 0.73:1, but represents a much higher habitat value than non-native grassland. A total of 2.34 acres of non-native grassland would be disturbed in the Temporary Project Area. This area would be restored after construction by seeding native grassland plant species in this area.

TABLE 3.4-2
EXISTING AND RESTORED HABITAT AREA AT SITE 2-1

	Permanent Project Area				Temporary Project Area	
	Above OHWM		Below OHWM		Above OHWM	Below OHWM
Habitat Type	Habitat Impacted (acres)	Habitat Created[1] (acres)	Habitat Impacted (acres)	Habitat Created[1] (acres)	Habitat Impacted (acres)	Habitat Impacted (acres)
Riparian Woodland						
Native woodland	1.34	2.11	4.46	4.15	0.27	1.16
Non-native woodland	0.09	0.00	0.29	0.00	0.06	0.00
Subtotal	1.43	2.11	4.75	4.15	0.33	1.16
Riparian scrub						
Native scrub	0.57	3.16	0.57	3.44	0.10	0.37
Non-native scrub	0.96	0.00	0.19	0.00	0.00	0.00
Subtotal	1.53	3.16	0.76	3.44	0.10	0.37
Herbaceous						
Native grassland	0.00	4.57	0.00	0.12	0.00	0.00
Non-native grassland	6.45	0.00	0.17	0.00	2.34	0.00
Emergent wetland	0.00	0.00	0.00	0.12	0.00	0.00
Subtotal	6.45	4.57	0.17	0.24	2.34	0.00
Other						
Unvegetated	1.97	1.54	0.19	1.97	1.98	0.17
Open water	0.00	0.00	3.92	0.00	0.00	0.41
Subtotal	1.97	1.54	4.11	1.97	1.98	0.57
Total	11.37	11.37	9.79	9.79	4.74	2.11

NOTE:
1. On-site created habitat acreage estimates are based on 90% project designs.

After construction, the site would also provide improved habitat for juvenile salmonids and species that typically occur at the water's edge, such as western pond turtle and river otter, by providing instream woody material. Surveys along the summer/fall (2,660 cfs) and winter/spring (3,900 cfs) shorelines recorded 12 percent and 16 percent instream woody structure, respectively, while the design for Site 2-1 includes instream cover of 44 and 50 percent cover, respectively (**Appendix C**).

As described in Section 3.6.4 of the ARCF GRR FEIS/FEIR, USACE analyzed effects on nearshore aquatic habitat (i.e., SRA habitat) using the Standard Assessment Methodology model developed by a multi-agency team including USACE, DWR, USFWS, and NMFS. More information on the methods used for the Standard Assessment Methodology analysis and the results of the analysis are included in Section 3.6, *Special Status Species*. The results show that plantings in the bench would be expected to provide similar or better habitat values for salmonid species over time compared to the existing condition.

However, a temporal impact on SRA habitat would occur, which USACE would mitigate by restoring SRA habitat at mitigation sites in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS. This off-site SRA habitat creation would be developed as part of the consultation under the Endangered Species Act. Short-term impacts on riparian habitat would occur that cannot be avoided, but the effects of these habitat reductions on vegetation and wildlife would be mitigated by providing higher long-term habitat values on-site, and off-site mitigation by restoring SRA habitat at mitigation site in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act, and at the elderberry transplant sites. Additional discussion can be found in Section 3.6, *Special Status Species*.

Riparian woodland present within Subreach 2 is considered a sensitive natural community. However, because a total of 12.86 acres would be created on-site and 8.00 acres would be created off-site to address impacts on VELB and western yellow-billed cuckoo habitat at a 3:1 and 2:1 ratio, respectively, the Proposed Action would result in a net increase in riparian woodland acreage within and near the Project Area. State and Federally protected wetlands and other jurisdictional waters are also considered to be protected sensitive natural communities. Of the impacted riparian habitat 5.51 acres is located below the OHWM (18,500 cfs water level) and is considered forested wetland. Based on the design of the Proposed Action, this riparian wetland would be replaced with 7.59 acre of riparian habitat located below the OHWM (Table 3.4-2). Additional off-site riparian habitat would be created at a mitigation site in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act and that would be located below the OHWM (See SRA-1 for additional discussion). In addition, 0.12 acre of emergent wetland is proposed to be constructed at the Project Area. No additional mitigation for impacts on jurisdictional waters is proposed. Given the above considerations, the impact of the project on sensitive natural communities, including riparian habitat and wetlands and other waters under State and Federal jurisdiction, would be less than significant with mitigation.

Construction activities for the Proposed Action could interfere with local movement of native resident or migratory wildlife species. Grading and other ground-disturbing activities could temporarily disrupt the movement of reptiles and amphibians, such as the western pond turtle. Although such reptiles and amphibians would likely need to move to and through adjacent unaffected aquatic or upland habitat away from active construction activities, the effect of the project on access of these species to their habitat would be temporary and these species would be expected to return to areas affected by construction once such work is completed. Additionally, there would be similar areas of riparian and grassland habitat in reaches along the Lower American River unaffected by the Proposed Action that could be utilized by these species. Equipment and personnel movement and vegetation removal during construction could interfere with the movement of other terrestrial wildlife species such as small mammals or birds; 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.

Noise from project construction could temporarily alter the foraging patterns of resident wildlife species in Subreach 2, but is not anticipated to substantially interfere with foraging because these species could move to nearby unaffected habitat. The impacts from project construction on nesting birds specifically, including the effects of removal of riparian trees, are discussed in Section 3.6, *Special Status Species*. Although construction work for the Proposed Action could temporarily alter the movement patterns of native resident or migratory wildlife species, it is not anticipated to significantly interfere with the movement of these terrestrial species, which could move to nearby unaffected habitat. Furthermore, construction would be temporary, limiting the potential for long-term impacts on the migration and movement of terrestrial wildlife. Once mitigation plantings become established, Subreach 2 would provide riparian habitat that is expected to be of higher quality than existing habitat, because habitat features that benefit native species would be included in the design, and the site would be managed for the establishment and persistence of native trees, shrubs and herbaceous plants. Over the long-term the project would not substantially reduce the quality or quantity of important habitat, or access to such habitat for wildlife species, although temporary loss of habitat would occur, which would be mitigated by off-site mitigation and/or purchase mitigation credits. Therefore, the impact of the project on the quantity and quality of wildlife habitat and access by wildlife to habitat would be less than significant with mitigation (see mitigation discussion, below).

The American River Parkway Plan provides a guide for land use decisions affecting the Parkway, and the plan specifically addresses the preservation, use, development and administration of the Parkway. With the on-site replacement of riparian habitat, the Proposed Action would ensure that there would be no net impacts on lands designated by the Parkway Plan as Protected Areas or Nature Study Areas. Although an initial loss of riparian habitat within the Parkway would occur, eventually the Parkway would experience a net increase in the extent of riparian habitat, or credits would be purchased at a NMFS approved mitigation bank. This increase in riparian vegetation is consistent with Terrestrial Resource Policy 3.2 of the Parkway Plan, which calls for the protection, enhancement, and expansion of the Parkway's native willow, cottonwood, and valley oak–dominated riparian and upland woodlands that provide important SRA, seasonal floodplain, and riparian habitats. Thereby, the impact of the project on local conservation plans, such as the Parkway Plan, would be less than significant.

The Project Area provides woody material, such as fallen logs, tree limbs, and branches that are lying on the floodplain surface. This instream woody material (native wood habitat) is particularly important when located on the winter/spring and summer/fall waterline, where it provides cover and foraging substrate for juvenile salmonids. This wood habitat also provides cover and perching habitat for terrestrial species. For example, various mammals (e.g., river otter) or reptiles (e.g., western pond turtle) use this wood as resting or basking habitat, and birds (e.g., black phoebe) use the wood as perches. Wood (e.g., harvested orchard trees) would be installed and kept in place with ropes on the floodplain as part of the project at all three sites. Although that project element is specifically designed to replace the wood present along the average winter/

spring and summer/fall waterline as salmonid habitat, placing the wood would also mitigate the removal of wood habitat for terrestrial species, and the impact of the project on woody debris habitat for terrestrial species would be less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

The following summarizes ARCF GRR FEIS/FEIR mitigation measures (pages 128 to 129) that are incorporated into the Proposed Action (with specific mitigation site information added):

> **Mitigation Measure VEG-1: Retain, Protect, and Plant Trees On-Site.** Project designs would be refined to reduce impacts on vegetation and wildlife to the extent practicable. Refinements implemented to reduce the loss of riparian habitat would include reducing the impact footprint, constructing bank protection rather than launchable rock trench whenever feasible, and designing planting benches.
>
> Where practicable, trees would be retained in locations where the bank protection and planting bench are constructed. Trees would be protected in place along the natural channel during the placement of rock. Additional plantings would be installed on the newly constructed bench to provide habitat for fish and avian species. The planting bench would be used where practicable to minimize impacts on fish and wildlife species. The on-site habitat would be created in accordance with the ARCF GRR Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP), which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.
>
> **Mitigation Measure VEG-2: Compensate for Riparian Habitat Removal.** To compensate for the removal of riparian habitat, replacement habitat would be created at a ratio of 2:1 to account for the temporal loss of habitat while newly created habitat is growing. Species selected to compensate for the riparian corridor removal would be consistent with the approved list of trees, shrubs, and herbaceous plants native to the Parkway. The riparian replacement habitat would create habitat connectivity and wildlife migratory corridors that would provide for the habitat needs of important native wildlife species without compromising the integrity of the flood control facilities, the Parkway's flood conveyance capacity, and the Parkway management goals in the Parkway Plan. Some of the replacement riparian habitat would planted on top of the rock trench. Additionally, to comply with the Parkway Plan, lands within the Parkway would be evaluated for compensation opportunities. The exact location of the compensation lands in the Parkway would be coordinated with the Sacramento County Department of Regional Parks during the design phase of the project and would comply with the Parkway Plan's objectives and goals. It is assumed that sufficient lands are available within the Parkway. The replacement habitat would be created in accordance with the ARCF GRR HMMAMP, which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.
>
> Within the Project Area, USACE has designated permanent and temporary construction zones. In temporary zones, some or all of the vegetation would be

removed for site access, haul routes, and staging areas. Then, upon completion of the project, temporary impact zones would be seeded with native grassland species. Permanent construction zones would require that most riparian vegetation be removed, but riparian vegetation would be planted at a planting bench and within the site on buried revetment or among the revetment. To compensate for the temporal loss of riparian vegetation and SRA habitat, creation of off-site habitat would also occur at sites that would be protected in perpetuity. These sites would include a mitigation site in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act. In addition, riparian habitat would be planted at the elderberry shrub mitigation areas, the Glenn Hall Park mitigation site, and the two Rio Americano mitigation sites, described in Chapter 2, *Project Description*.

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. This mitigation measure is described in Section 3.6, *Special Status Species*.

Summary

The ARCF GRR FEIS/FEIR concluded that mitigation measures would reduce potential long-term impacts on vegetation and wildlife resources to a less-than-significant level because once vegetation has fully developed, the habitat quality of the Project Area would be similar or better than under existing conditions. The ARCF GRR FEIS/FEIR also concluded that short-term impacts on vegetation and wildlife resources associated with construction within the American River Parkway would be significant and unavoidable. Construction of the Proposed Action would not result in short-term impacts on vegetation and wildlife resources that would be new or more severe than those addressed in the ARCF GRR FEIS/FEIR and, therefore, those construction-related short-term impacts on vegetation and wildlife are already adequately addressed in the ARCF GRR FEIS/FEIR.

Under the Proposed Action, the mitigation for loss of riparian habitat would be satisfied as part of required compensatory mitigation for the loss of suitable habitat for VELB and western yellow-billed cuckoo. For more details on the compensatory mitigation requirements for the VELB and western yellow-billed cuckoo, see Section 3.6, *Special Status Species.*

In summary, to address the impacts on the 10.43 acres of riparian habitat (including forested wetland below OHWM) that would be affected by construction of the Proposed Action, replacement riparian habitat would be created, including 12.86 acres on site and 8.00 acres off site. Implementing this compensatory mitigation would reduce long-term impacts on any natural community or wildlife habitat within the Project Area to a less-than-significant level by creating on-site and off-site riparian habitat. Short-term impacts on vegetation and wildlife habitat would remain significant and unavoidable, because it would take a number of years (e.g., 10–15 years) for riparian habitat to become fully mature and provide the same values as existing riparian habitat.

Because impacts on migratory and movement conditions for terrestrial wildlife would be minor or temporary in duration and mitigated by on-site replacement, off-site mitigation, the impacts on the quality or quantity of important habitat, or access to such habitat for wildlife species, would be less than significant with on-site and off-site mitigation, and no additional mitigation measures are necessary.

With implementation of the riparian habitat mitigation that addresses impacts on VELB and western yellow-billed cuckoo, the potential for conflicts with the Parkway Plan would be less than significant because a net long-term increase in the extent of riparian habitat within the Parkway would occur.

Because the project would involve anchoring of new large instream woody material to replace the wood present along the shoreline that would be removed during construction activities, the impact of the Proposed Action on native wood habitat with the Parkway would be less than significant.

Implementation of the above mitigation measures from the ARCF GRR FEIS/FEIR with added specificity regarding mitigation sites would reduce the impact of the Proposed Action on vegetation and wildlife to a less-than-significant level.

3.5 Fisheries

3.5.1 Environmental Setting

3.5.1.1 Regulatory Setting

Section 3.7 (page 132) of the ARCF GRR FEIS/FEIR identified no Federal or State environmental laws and regulations that apply to fisheries resources. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. There has been no change to the applicable listed regulations related to fisheries. The American River Parkway Plan discusses management of fish habitat and is described in Section 3.4.1.1.

3.5.1.2 Existing Conditions

Section 3.7 (pages 131–135) of the ARCF GRR FEIS/FEIR describes the regional and local setting in the vicinity of the Project Area for the Proposed Action. The following provides additional information specific to the Project Area.

Native and non-native fish species that can be found in the Lower American River are listed below. Federally listed or State-listed species are discussed in detail in Section 3.6, *Special Status Species*. Non-native species are indicated with "(NN)."

- Chinook salmon
- Steelhead
- Delta smelt
- Hardhead
- Wester river lamprey
- White sturgeon
- Green sturgeon
- California roach
- Hitch
- Sacramento blackfish
- Sacramento pikeminnow
- Sacramento sucker
- Splittail
- Speckled dace
- Threespine stickleback
- Prickly sculpin
- Riffle sculpin
- Striped bass (NN)
- Largemouth bass (NN)
- Smallmouth bass (NN)
- American shad (NN)
- Threadfin shad (NN)
- Bluegill sunfish (NN)
- Green sunfish (NN)
- Redear sunfish (NN)
- White crappie (NN)
- Channel catfish (NN)
- White catfish (NN)
- Brown bullhead catfish (NN)
- Black bullhead catfish (NN)
- Common carp (NN)
- Goldfish (NN)
- Western mosquitofish (NN)
- Golden shiner (NN)
- Fathead minnow (NN)
- Wakasagi (NN)
- Brown trout (NN)
- Inland silverside (NN)

The ARCF GRR FEIS/FEIR identified the important attributes of fish habitat present in the Lower American River as aquatic vegetation and shaded riverine aquatic (SRA) habitat. The ARCF GRR FEIS/FEIR defined aquatic vegetation as floating, submerged, and emergent vegetation that serves as hiding cover and an invertebrate food production base for nearly all aquatic species. The ARCF GRR FEIS/FEIR defined SRA habitat as overhanging canopy cover.

In 2018, Environmental Science Associates biologists conducted aquatic vegetation and SRA habitat surveys in the Project Area.[24] In the Project Area (Site 2-1), aquatic vegetation was present along 36 percent of the summer/fall seasonal shoreline and 54 percent of the winter/spring shoreline. Approximately 3,403 linear feet of SRA habitat was present along the summer/fall seasonal shoreline in the Project Area **(**Appendix C).

3.5.2 Methodology and Basis of Significance

3.5.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.7.2 (page 136) of the ARCF GRR FEIS/FEIR. This involves analyzing how the expected changes to aquatic vegetation and SRA habitat may affect populations of native fish species and how construction activities may affect native fish. Effects on special status fish species are addressed in Section 3.6 and impacts on natural communities (including riparian vegetation) are addressed in Section 3.4.

[24] Environmental Science Associates. 2018. Lower American River Resource Assessment. Prepared for Sacramento Area Flood Control Agency. Sacramento, CA. November 2018.

3.5.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.7.2 (page 136) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to fisheries if it would:

- 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;
- Substantially conflict with the American River Parkway Plan;
- Substantially reduce the habitat of a fish population; or
- Cause a fish population to drop below self-sustaining levels.

Effects Not Evaluated in This Section

The criterion "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS" is evaluated in Section 3.6, *Special Status Species*, of this EA/EIR.

3.5.3 Impact Analysis

3.5.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the risk of flooding within the Sacramento metropolitan area due to levee failure caused by seepage, slope stability, overtopping, or other erosion concerns would remain unchanged from its present level. Section 3.7.3 (page 137) of the ARCF GRR FEIS/FEIR analyzed impacts on Fisheries under the No Action Alternative. However, it would be speculative to assume that any additional work would be conducted to address the seepage, slope stability, overtopping, or erosion concerns in the study area. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure.

The ARCF GRR FEIS/FEIR determined the effects of flood fighting on fish in the event of a levee failure could be significant. If flood fighting were to occur to stop erosion and prevent levee failure, placing large rock along the levee slope would prevent or impede the future growth of trees and vegetation on the levee slopes, which would substantially reduce fish habitat. Emergency cleanup and earth-moving activities could also result in an increase in sediment and turbidity that would adversely affect migration, spawning, or rearing habitat. Given the nature of emergency cleanup activities, implementing best management practices and measures to reduce effects on fish may not be feasible, and populations may drop below self-sustaining levels.

In addition, high flows in the American River would cause levees and berms to erode. As the banks of the river erode, important SRA habitat would be lost. Flood fight activities to save levee structures would likely occur during a high-flow emergency response. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.5.3.2 Proposed Action

The following impact analysis is drawn from Section 3.7.4 (pages 137–140) of the ARCF GRR FEIS/FEIR, as revised to reflect the Project Area and the impacts of the Proposed Action.

Rock placement during bank protection activities would likely disturb native, resident fish by increasing noise, water turbulence, and turbidity, causing them to move away from the area of rock placement and put them at a slightly increased risk of predation. Native benthic species would not be affected, given their location away from the levee slope where revetment would be placed.

Construction of bank protection would disturb soils and lead to increased turbidity in the nearshore aquatic habitat. The increase in suspended solids and turbidity would generally be short term. Sedimentation and turbidity increases may affect fish physiology, behavior, and habitat.

Direct effects on resident native fish species habitat would be limited because existing conditions would not be worsened by project construction, which would include creating planting benches to provide shade and instream woody material elements of SRA habitat. A temporary loss of SRA habitat would occur, but over the long term the erosion protection sites would support higher quality SRA habitat than under existing conditions, as described in Section 3.5. Temporary reductions in SRA habitat would be compensated for by creation of riparian habitat along the LAR within the American River Parkway (see Section 3.6, *Special Status Species*). Because the LAR is expected to recover in the long term and provide improved habitat for fish species, the project would not conflict with the river's outstandingly remarkable value of fisheries designation under the Federal Wild and Scenic Rivers Act, and would not be in conflict with the American River Parkway Plan (see Section 3.4, *Vegetation and Wildlife*).

The other proposed levee improvement measure included in the Proposed Action involves constructing a launchable rock-filled trench designed to deploy once erosion has removed the bank material beneath it. The launchable rock trench at the downstream end of Site 2-1 would be constructed outside of the natural river channel, with no significant direct construction effects on native fish species. At extreme flood flows, when the rock would launch, the mobilized large rock could physically hurt fish in the channel, however it is assumed that if no rock were to be placed the levee would overtop or breach, causing fish to be transported out of the floodway where they would be subject to mortality.

Implementation of the mitigation measures identified below would reduce the impact of construction of the erosion protection measures on fisheries resources to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

The following summarizes ARCF GRR FEIS/FEIR mitigation measures (pages 143–144) that are incorporated into the Proposed Action. The following modification was made to the mitigation measures.

- Based on input from NMFS, the in-water work window was changed from the period of August 1 to November 30, to the period of July 1 to October 31, because this was deemed more appropriate for the salmonids occurring in the American River.

  Mitigation Measure FISH-1: Observe In-Water Work Windows. In-water construction would be restricted to the general estimated work window of July 1 through October 31. During preconstruction engineering and design, the work window may be adjusted on a site-specific basis, taking into account periods of low fish abundance, and in-water construction outside the principal spawning and migration season. Typical construction season generally corresponds to the dry season, but construction may occur outside the limits of the dry season, only as allowed by applicable permit conditions.

  Mitigation Measure FISH-2: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination. Because of the deleterious effects on native resident fish of numerous chemicals used in construction, if a hazardous materials spill does occur, a detailed analysis would be performed immediately by a registered environmental assessor or professional engineer to identify the likely cause and extent of contamination. This analysis would conform to American Society for Testing and Materials standards, and would include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, USACE and its contractors would select and implement measures to control contamination, with a performance standard that surface water quality and groundwater quality must be returned to baseline conditions.

In addition, the mitigation measures that address riparian habitat removal in the ARCF GRR FEIR/FEIS Vegetation and Wildlife Section (Section 3.6) and summarized in Section 3.4 of this document (Mitigation Measures VEG-1 and VEG-2) would reduce impacts on fisheries resources. BMPs associated with construction related impacts such as dust, runoff, and spills that are consistent with the Water Quality and Groundwater Resources Section of the ARCF GRR FEIR/FEIS Section (Section 3.5) and that are summarized in Section 3.2 of this document (Mitigation Measure WQ-1) would also reduce impacts on fisheries resources. Lastly, mitigation measures that address impacts on listed fish species from the ARCF GRR FEIR/FEIS Special Status Species Section (Section 3.8) and summarized in Section 3.6 of this document (Mitigation Measures FISH-3 and SRA-1) would also reduce impacts on fisheries resources.

Summary

Implementation of the previously adopted mitigation measures in the ARCF GRR FEIS/FEIR, as modified, would reduce the impact of the Proposed Action on fisheries resources to a less-than-significant level.

3.6 Special Status Species

3.6.1 Environmental Setting

3.6.1.1 Regulatory Setting

Section 3.6 (pages 144 and 145) of the ARCF GRR FEIS/FEIR presents Federal and State laws governing special status species. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations and described the status of compliance with those laws and regulations. While most of these laws and regulations are unchanged, there have been changes to two of the applicable laws and regulations related to special status species, as summarized below. The American River Parkway Plan which addresses management of special status species habitats is described in Section 3.4.1.1.

Migratory Bird Species Act

In December 2017, the acting Solicitor of the U.S. Department of the Interior issued a memorandum stating that the Migratory Bird Treaty Act does not prohibit incidental take of migratory birds.[25] This interpretation has been challenged in Federal court. In California, migratory birds are still protected (including from incidental take) under State law.[26]

Federal Endangered Species Act

The Federal Government has adopted several rules regarding implementation of the Federal Endangered Species Act (e.g., 84 *Federal Register* 44976, August 27, 2019); however, these changes do not substantially change the application of NEPA to the Proposed Action.

Other relevant laws and regulations that have remained unchanged are:

- National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.)
- Wild and Scenic Rivers Act (16 USC 1217 et seq.)
- California Endangered Species Act
- California Environmental Quality Act

[25] Jordani, D. H. 2017. Memorandum M-37050 to the Secretary, Deputy Secretary, et al. Subject: The Migratory Bird Treaty Act Does Not Prohibit Incidental Take, U.S. Department of the Interior, Washington, DC, December 2017. Available: https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf. Accessed November 24, 2019.

[26] California Department of Fish and Wildlife and X. Becerra. 2018. California Department of Fish and Wildlife and California Attorney General Xavier Becerra Advisory Affirming California's Protections for Migratory Birds, Sacramento, CA, November 29, 2018. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=162352. Accessed November 24, 2019.

3.6.1.2 Existing Conditions

Section 3.8 (pages 144–195) of the ARCF GRR FEIS/FEIR describes the regional and local setting in the vicinity of the Project Area for the proposed action. The following provides additional information specific to the Project Area.

An updated list of special status species with potential to occur in or in the vicinity of the Project Area was compiled from a nine-quadrangle search of the California Natural Diversity Database (CNDDB)[27]; a search of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation endangered species database[28]; and literature regarding the biological resources of the region. The search encompassed the following 7.5-minute U.S. Geological Survey topographic quadrangles:

Taylor Monument	Rio Linda	Citrus Heights
Sacramento West	Sacramento East	Carmichael
Clarksburg	Florin	Elk Grove

Each species on the list was assessed individually based on its habitat requirements and distribution relative to the location of and vegetation communities occurring in and around the Project Area for the proposed action. **Tables 3.6-1** and **3.6-2** provide comprehensive lists of the special status species considered in this analysis. The species with moderate or high potential to occur in the Project Area are described below in greater detail. If habitat was not present or the Project Area is outside of the known range of the species, the species was assumed absent and excluded from the list.

The "Potential to Occur" categories are defined as follows:

- **Unlikely**: The Project Area provides only limited and low-quality habitat for a particular species. In addition, the known range for a particular species may be outside of the Project Area.
- **Likely**: The Project Area and/or immediate vicinity provides suitable habitat for a particular species.
- **Present:** The species (or evidence of its presence) was observed in the Project Area during biological resources surveys conducted for the project (see below).

The analysis below considers those special status species that have been categorized as present or likely to occur in the Project Area.

[27] California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle, and surrounding eight quadrangles. Information accessed June 25, 2019.

[28] U.S. Fish and Wildlife Service. 2019. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Sacramento East U.S.G.S. 7 1/2 Minute Quads.* Species list generated June 25, 2019.

TABLE 3.6-1
SPECIAL STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species			
Invertebrates			
Crotch bumble bee *Bombus crotchii*	–/CP	Open grasslands and scrub habitat in California with available underground nesting habitat in animal burrows.	**Likely.** Annual grassland and scrub habitats are available and several commonly visited flower species were identified as occurring in the Project Area. However, there are few recent sightings in the vicinity.
Western bumble bee *Bombus occidentalis occidentalis*	–/CP	Nests, forages, and overwinters in meadows and grasslands with abundant floral resources and available underground nesting habitat in animal burrows. Range is throughout California, but more common in the Sierra Nevada and Coast Ranges than in the Central Valley.	**Unlikely.** Grassland habitat is available, but the western bumble bee is uncommon in the Central Valley.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/–	Mature elderberry shrubs.	**Present.** Elderberry plants are present in the Project Area. Exit holes observed.
Reptiles			
Giant garter snake *Thamnophis gigas*	FT/CT	Permanent or semi-permanent water and dense emergent vegetation; freshwater marshes, streams, and canals with permanent water.	**Unlikely.** The American River lacks suitable habitat.
Birds			
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/CE	In California, western cuckoos are largely restricted to river valleys in the north-central (e.g., Sacramento River) and southwestern (e.g., Kern River) regions. Western cuckoos prefer to nest in willow (*Salix* spp.), cottonwood (*Populus* spp.), and mesquite (*Prosopis* spp.), but they will also use orchards.	**Likely.** Vocalization recently documented approximately 3 miles upstream on a densely forested island in the American River. Sub-marginal nesting habitat occurs in the Project Area, but it may be used by transient birds.
Tricolored blackbird *Agelaius tricolor*	–/CT	Breeds near freshwater in dense emergent vegetation or dense brush.	**Unlikely.** Marginal nesting habitat in the willow riparian area. Closest known occurrence is greater than 5 miles away.
Swainson's hawk *Buteo swainsoni*	–/CT	Often nests near riparian systems, but will also use lone trees in agricultural fields or pastures and roadside trees when available and adjacent to suitable foraging habitat.	**Likely.** Known to occur within 0.5 miles of the Project Area.
Bank swallow (nesting) *Riparia riparia*	–/CT	Colonial nester mostly along coastal areas and rivers in Northern and Central California. Nesting restricted to vertical banks or bluffs with friable soils suitable for burrowing. Vegetation is varied; nesting sites are selected mostly based on the suitability of the nesting bank.	**Likely.** Previously observed approximately 0.5 miles downstream of the Project Area. No bank nesting habitat observed within the Project Area, but may use the Project Area for foraging.

TABLE 3.6-1 (CONTINUED)
SPECIAL STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species(cont.)			
Fishes			
Sacramento River winter-run Chinook salmon *Oncorhynchus tshawytscha*	FE/CE	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	**Likely.** Juveniles hatched in the Sacramento River may enter the Lower American River for non-natal refugia and rearing after emigrating from their natal Sacramento River.
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	FT/CT	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	**Likely.** Juveniles hatched in tributaries of the Sacramento River may use the Lower American River for non-natal rearing and refugia after emigrating from their natal rivers and streams.
California Central Valley steelhead *Oncorhynchus mykiss*	FT/–	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	**Present.** Adults spawn in Lower American River gravel and juveniles rear in and emigrate through the Lower American River.
North American green sturgeon *Acipenser medirostris*	FT/–	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	**Unlikely.** No evidence of occurrence in the Lower American River exists, but Federal critical habitat is designated in the Lower American River from its confluence with the Sacramento River upstream to the State Route 160 bridge.
Non-listed Special Status Species			
Reptiles			
Western pond turtle *Actinemys marmorata*	–/CSC	Variety of aquatic habitats, both permanent and intermittent, with suitable aerial and aquatic basking sites. Needs upland habitats for nesting, overwintering, and aestivating.	**Present**. Observed in the Project Area during surveys.
Birds			
Cooper's hawk *Accipiter cooperii*	–/WL	A common migrant and winter resident. Nests and forages in a wide variety of forest and woodland habitats.	**Likely**. Known to occur within 0.5 miles of the Project Area.
Great egret *Ardea alba*	MBTA/–	Colonial nester in large trees. Rookery sites located near marshes, tide flats, irrigated pastures, and margins of rivers and lakes.	**Likely**. Potential nesting habitat in the Project Area. There is an egret rookery approximately 5 miles upstream of the Project Area on the American River.
Great blue heron (rookery site) *Ardea herodias*	MBTA/–	Variety of habitats near sources of water. Nests commonly high in the tops of secluded large snags or live trees.	**Likely**. Potential nesting habitat in the Project Area. There is a heron rookery within 5 miles downstream of the Project Area on the American River.
Burrowing owl *Athene cunicularia*	–/CSC	Nests and roosts in burrows, usually of ground squirrels, in grasslands and ruderal habitats.	**Likely.** Potential nesting habitat along the levees where several ground squirrel burrows were observed. Closest known extant CNDDB occurrence is 3 miles to the south.
White-tailed kite (nesting) *Elanus leucurus*	–/FP	Savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland habitats. Nests in trees, often near marshes.	**Present**. Known to occur in the Project Area on the south side.

TABLE 3.6-1 (CONTINUED)
SPECIAL STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Non-listed Special Status Species (cont.)			
Birds (cont.)			
Purple martin *Progne subis*	–/CSC	Nests mostly in old woodpecker cavities; also nests in human-made structures. Nest is often located in tall, isolated trees/snags.	**Likely**. Potential nesting habitat in the Project Area. Known to occur on bridge and overpass structures within 1 mile of the Project Area.
Mammals			
Pallid bat *Antrozous pallidus*	–/CSC	Arid deserts and grasslands of low elevations in California; often near rocky outcrops and water. Usually roosts in rock crevices or buildings, less often in caves, tree hollows, mines, etc. Prefers narrow crevices in caves as hibernation sites.	**Likely.** This species may roost in buildings and bridges in the Project Area; however, roosting is not reported by the CNDDB within 5 miles of the Project Area or within the nine-quadrangle area that includes the Project Area.
Western red bat *Lasiurus blossevillii*	–/CSC	Associated with riparian habitat. Roosts primarily in the foliage of trees or shrubs, but may also occasionally use caves. Day roosts commonly in edge habitats.	**Likely**. This species may roost in mixed oak woodland habitat in the Project Area; however, roosting is not reported by the CNDDB within 5 miles of the Project Area or within the nine-quadrangle area that includes the Project Area.
American badger *Taxidea taxus*	–/CSC	Requires sufficient food, friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground.	**Likely.** The potential exists for this species to use the Parkway. Although no signs of presence were observed, there were small fossorial mammal burrows and ground squirrel activity. There are two known occurrences within 5 miles; however, the most recent sighting was from 1991.
Fishes			
Central Valley fall-/late fall-run Chinook salmon *Oncorhynchus tshawytscha*	FSC/CSC	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	**Present.** Adults spawn in Lower American River gravel and juveniles rear in and emigrate through the Lower American River.
Hardhead *Mylopharodon conocephalus*	–/CSC	Low to mid-elevation streams with clear, deep pools and runs with slow velocities.	**Present.** Known to occur in the Lower American River.
Western river lamprey *Lampetra ayresi*	–/CSC	Cold, freshwater streams with suitable gravel for spawning and sandy to silty backwaters or stream edges for larval rearing.	**Present.** Adults spawn in Lower American River gravel and larvae rear in the Lower American River.

NOTES:
CDFW = California Department of Fish and Wildlife; CNDDB = California Natural Diversity Database; Delta = Sacramento–San Joaquin Delta; Parkway = American River Parkway

FEDERAL
FC: Federal candidate for listing
FE: Federally listed as endangered
FT: Federally listed as threatened
FD: Federally delisted
FSC: Federal species of concern
MMPA: Marine Mammal Protection Act
MBTA: Migratory Bird Treaty Act

STATE
CE: State listed as endangered
CT: State listed as threatened
CD: State delisted
CP: State proposed for listing

STATE
FP: California fully protected species
CSC: California species of special concern
* : CDFW protected
WL: CDFW watch list

TABLE 3.6-1 (CONTINUED)
SPECIAL STATUS ANIMAL SPECIES CONSIDERED IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur

SOURCES:

California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle, and surrounding eight quadrangles. Information accessed June 25, 2019.
Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.
Melcer, Ron Jr., Senior Environmental Scientist–Supervisor, Delta Stewardship Council, email communication with Gerrit Platenkamp, Project Manager, Environmental Science Associates, July 28, 2019.
Shuford, W. D., and T. Gardali (eds.). 2008. *California Bird Species of Special Concern. Studies of Western Birds 1*. Camarillo and Sacramento, CA: Western Field Ornithologists and California Department of Fish and Game.
U.S. Fish and Wildlife Service. 2015. Memorandum to U.S. Army Corps of Engineers, Sacramento District: *Formal Consultation on the American River Common Features (AFRC) Project, Sacramento County, California,* September 2015.
———. 2019. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Sacramento East U.S.G.S. 7 1/2 Minute Quads*. Species list generated June 25, 2019.
Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.
Zeiner, D. C., W. F. Laudenslayer Jr., and K. E. Mayer (comp. eds.). 1988. *California's Wildlife. Volume I: Amphibians and Reptiles.* California Statewide Wildlife Habitat Relationships System. Sacramento: California Department of Fish and Game.
———. 1990a. *California's Wildlife. Volume II: Birds.* Sacramento: California Department of Fish and Game.
———. 1990b. *California's Wildlife. Volume III: Mammals*. Sacramento: California Department of Fish and Game.

TABLE 3.6-2
SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
Ferris' milk-vetch *Astragalus tener* var. *tener*	–/–/1B.1	Vernally mesic meadows and seeps; sub-alkaline grasslands. 1–60 meters. April–May.	**Unlikely.** Suitable alkaline substrate not present in the study area.
valley brodiaea *Brodiaea rosea* ssp. *vallicola*	–/–/4.2	Silty, sandy and gravelly loam soils; valley and foothill grasslands along swales; vernal pools. 10-335 meters. Grows in grasslands on old alluvial terraces that have developed a perched water table, in vernal pool landscapes (Preston, 2013). April–May (June).	**Unlikely.** Vernal pool landscapes and hydrology not present.
bristly sedge *Carex comosa*	–/–/2B.1	Coastal prairie; margins of marshes and swamps; valley and foothill grassland. 0–625 meters. May–September.	**Unlikely.** Suitable habitat present, but species was not observed during focused rare plant survey.
pappose tarplant *Centromadia parryi* ssp. *parryi*	–/–/1B.2	Often on alkaline soils; chaparral; coastal prairie; meadows and seeps; coastal salt marshes and swaps; vernally mesic valley and foothill grassland. 0–420 meters. May–November.	**Unlikely.** Suitable habitat present, but species was not observed during focused rare plant survey.
Parry's rough tarplant *Centromadia parryi* ssp. *rudis*	–/–/4.2	Valley and foothill grassland on alkaline, vernally mesic soils; seeps; sometimes roadsides; vernal pools. 0–100 meters. May–October.	**Unlikely.** Suitable soils not present.
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	–/–/2B.2	Freshwater marshes and swamps. 15–280 meters. July–October.	**Unlikely**. Suitable habitat present, but last seen in 1948 in Merced County. Observations in Sacramento County have not yet been verified.

TABLE 3.6-2
SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
dwarf downingia *Downingia pusilla*	–/–/2B.2	Mesic valley and foothill grassland; vernal pools; roadside ditches. 1–445 meters. March–May.	**Unlikely.** Suitable habitat not present.
stinkbells *Fritillaria agrestis*	–/–/4.2	Clay or sometimes serpentine soils; chaparral; cismontane woodland; pinyon and juniper woodland; valley foothill grassland. 10–1,555 meters. March–June.	**Unlikely.** Suitable habitat on suitable soil is not present.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–/CE/1B.2	Clay soils; margins of marshes and swamps; vernal pools. 10-2,375 meters. April–August.	**Unlikely.** Suitable habitat not present.
hogwallow starfish *Hesperevax caulescens*	–/–/4.2	Valley and foothill grassland on mesic, clay soils; vernal pools. 0–505 meters. March–June.	**Unlikely.** Suitable habitat on suitable soil is not present.
woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–/–/1B.2	Often in riprap on sides of levees; freshwater marshes and swamps. 0–120 meters. June–September.	**Unlikely.** Suitable habitat present, but species was not observed during focused rare plant survey.
Northern California black walnut *Juglans hindsii*		Deciduous tree found in riparian forests and riparian woodlands up to 460 meters. Widely naturalized as a result of agricultural use as a rootstock for English walnuts. Considered native and special status in stands at three sites. April–May.	**Unlikely**. None of the special status native stands are near the project.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.2	Vernal pools; mesic valley and foothill grassland. 30–229 meters. March–May.	**Unlikely.** Project Area outside elevation range.
legenere *Legenere limosa*	–/–/1B.1	Vernal pools. 1–880 meters. April–June.	**Unlikely.** Suitable habitat not present.
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	–/–/1B.2	Alkaline flats within valley and foothill grassland. 2–200 meters. March–May.	**Unlikely.** Suitable soils not present.
Mason's lilaeopsis *Lilaeopsis masonii*	–/CR/1B.1	Freshwater or brackish marshes and swamps; riparian scrub. 0–10 meters. June–September.	**Unlikely.** No occurrences this far upriver.
hoary navarretia *Navarretia eriocephala*	–/–/4.3	Vernally mesic cismontane woodland, and valley and foothill grassland. 105–400 meters. May–June.	**Unlikely.** Project Area outside elevation range.
Layne's ragwort *Packera layneae*		Rocky serpentine or gabbroic soils in chaparral and cismontane woodland. 200–1,085 meters. April–August.	**Unlikely.** Suitable soils not present.
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Assorted shallow freshwater marshes and swamps. 0–650 meters. May–October (November).	**Present.** Suitable habitat present and observed in Project Area.
Suisun Marsh aster *Symphyotrichum lentum*	–/–/1B.2	Brackish and freshwater marshes and swamps. 0–3 meters. (April) May–November.	**Unlikely.** Marginal suitable habitat present.

TABLE 3.6-2
SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Common Name Scientific Name	Status Fed/State/ CRPR or Other	Habitat	Potential to Occur
saline clover *Trifolium hydrophilum*	–/–/1B.2	Marshes and swamps; mesic, alkaline valley and foothill grassland; vernal pools. 0–300 meters. April–June.	**Unlikely.** Suitable soils not present.

NOTES:

CRPR = California Rare Plant Rank

Potential Occurrence in the Project Area:
Present = Known populations occur in the immediate Project Area or within the project site.
Likely = The project site and/or immediate Project Area provides suitable habitat for a particular species.
Unlikely = The project site does not support suitable habitat for a particular species and/or the project site is outside of the species' known range.

Status Codes:

Federal
FE = listed as endangered under the Federal Endangered Species Act
FT = listed as threatened under the Federal Endangered Species Act
— = no listing

State
SE = listed as endangered under the California Endangered Species Act
ST = listed as threatened under the California Endangered Species Act

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.

SOURCES:

California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB). RareFind 5.0. Version 5.2.14. Biogeographic Data Branch.
California Native Plant Society. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Rare Plant Program. Available: www.rareplants.cnps.org. Accessed July 2019.
Preston, R. E. 2013. A Revision of *Brodiaea coronaria* (Asparagaceae: Brodiaeoideae): Morphometric Analysis and Recognition of New and Emended Taxa. *Systematic Botany* 38(4):1012–1028, DOI: 10.1600/036364413X674913.
U.S. Fish and Wildlife Service. 2019. *IPaC Trust Resource Report of Federally Endangered and Threatened Species in the Vicinity of the Lower American River Commons Features Contract 1.*

Federally Listed and State-Listed Wildlife Species

Crotch Bumble Bee

The Crotch bumble bee was recommended to be added to the State endangered species list and was listed as a candidate species by the California Department of Fish and Wildlife (CDFW) in June 2019. It inhabits open grassland and scrub habitats throughout California. Crotch bumble bees primarily nest underground in mammal burrows, but are occasionally observed in old logs and cavities in trees, among other aboveground locations. They are generalist foragers, with short tongues, and thus have a preference for foraging on open flowers with short corollas. They overwinter in soft disturbed soil or under leaf litter.[29]

This species was historically common throughout the Central Valley, but now is mostly absent. The closest occurrence in recent history (1998) documented in the CNDDB was

[29] California Department of Fish and Wildlife. 2019. Evaluation of the Petition from the Xerxes Society, Defenders of Wildlife, and the Center for Food Safety to List Four Species of Bumble Bees as Endangered under the California Endangered Species Act. Sacramento, CA. April 4, 2019. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=166804&inline. Accessed December 12, 2019.

just southwest of Davis, approximately 18 miles west of the Project Area. Two more recent occurrences were documented in the CNDDB in 2007; the first was just outside of Fairfield, approximately 36 miles to the southwest, and the second was near Tisdale Weir in Colusa County, approximately 38 miles to the north. More recent occurrences are in the Sierra Nevada and the Coast Ranges. Nonetheless, suitable habitat is present in the Project Area in annual grassland and scrub habitats.

Valley Elderberry Longhorn Beetle

Section 3.8.1 (page 149) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. Updated occurrence information is presented below.

There are documented occurrences of valley elderberry longhorn beetle (VELB) in the Project Area from 1984, when 11 beetles were captured, and from 2009.[30] In 2018, surveys were completed to update and document the current elderberry and VELB populations. New exit holes were observed.[31]

Surveys were conducted in 2018 and 2019 in accordance with the USFWS 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (2017 Framework).[32] This guidance document superseded the 1999 *Conservation Guidelines for Valley Elderberry Longhorn Beetle*.[33] Global Positioning System (GPS) point locations and data with sub-meter accuracy were taken for elderberry shrubs with stems measuring greater than 1 inch in diameter at ground level. Visual estimates of shrub height and maximum diameter (canopy) were recorded. All shrubs within the project limits were considered to be in riparian habitat. To ensure consistency with the previous methodology as used in the ARCF 2015 Biological Assessment, a geographic information system (GIS) was used to group elderberry stems into clusters if the stems were within 16 feet of each other (as described in the survey protocol developed by Talley and others for the original 2011 surveys). Each elderberry cluster is considered equivalent to a "shrub."

In addition to mitigating direct impacts on elderberry shrubs, the 2017 Framework focuses on maintaining the connectivity of riparian habitats. Not only do riparian habitats provide habitat used by VELB for mating, foraging, and dispersal, but studies have shown that healthy riparian habitats increase elderberry recruitment and health. The USFWS 2017 Framework states (pages 7–8):

> *Because the elderberry is the sole host plant of the VELB, any activities that adversely impact the elderberry shrub may also adversely impact the VELB.*

[30] California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle, and surrounding eight quadrangles. Information accessed June 25, 2019.

[31] Environmental Science Associates. 2018. *Lower American River Subreach 2 Draft Final Resource Assessment.* November 2018.

[32] U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus). Sacramento, California. 28 pp.

[33] U.S. Fish and Wildlife Service. 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle.* Sacramento, California. 15 pp.

Adverse impacts to elderberry shrubs can occur either at a habitat scale or at an individual shrub scale. Activities that reduce the suitability of an area for elderberry plants or elderberry recruitment and increase fragmentation may have adverse impacts to mating, foraging, and dispersal of VELB. The patchy nature of VELB habitat and habitat use makes the species particularly susceptible to adverse impacts from habitat fragmentation.

Talley and others (2006)[34] found that occupied clusters of elderberry stems in the Parkway are approximately 25–50 meters (82–98 feet) apart. Therefore, the area within 25 meters of the shrubs is considered a zone of riparian habitat where elderberry plants could be recruited to provide habitat that could be easily reached by VELB, if they were to occupy existing elderberry plants. Thus, the 2018 and 2019 surveys also determined the presence of suitable habitat for identified elderberry shrubs.

To determine elderberry shrub habitat, collected data were evaluated and assessed based on available literature (Talley et al. 2006; Talley et al. 2007;[35] Holyoak et al. 2008;[36] and Vaghti et al. 2009[37]). Elevation of floodplain, associated overstory species, and vegetation canopy structure were considered in determining the affected elderberry shrub habitat. Analysis of elderberry shrub elevation data showed that elderberry shrubs rarely occur within frequently inundated areas. Only 2 out of 599 shrubs (0.3 percent) for which elevation data was available in the Project Area occurred below the elevation of the 2-year flood (i.e., 18,500 cubic feet per second [cfs] or the ordinary high-water mark [OHWM]), which is at about 26 feet NGVD in the American River Contract 1 Project Area. Vaghti et al.[38] found that elderberry shrubs are more likely found at 12 feet above the summer low flow (at 17.4 feet or 2,660 cfs), which, on average, is at about 30 feet NGVD in the Project Area. Analysis of the plant communities that elderberry shrubs are associated with found that elderberry shrubs are most commonly found in elderberry savanna, and black walnut– or black locust–dominated communities, but can be found in virtually all woodland and scrub communities above the OHWM. Woodland or scrub communities occurring above the OHWM and within 82 feet of an elderberry scrub canopy were considered suitable habitat for valley elderberry longhorn beetles. Non-native grasslands, open water, paved surfaces, and barren land were not considered habitat for the beetle. **Figure 3.6-1** shows elderberry shrubs and habitat for the valley elderberry longhorn beetle that would be affected by the proposed action.

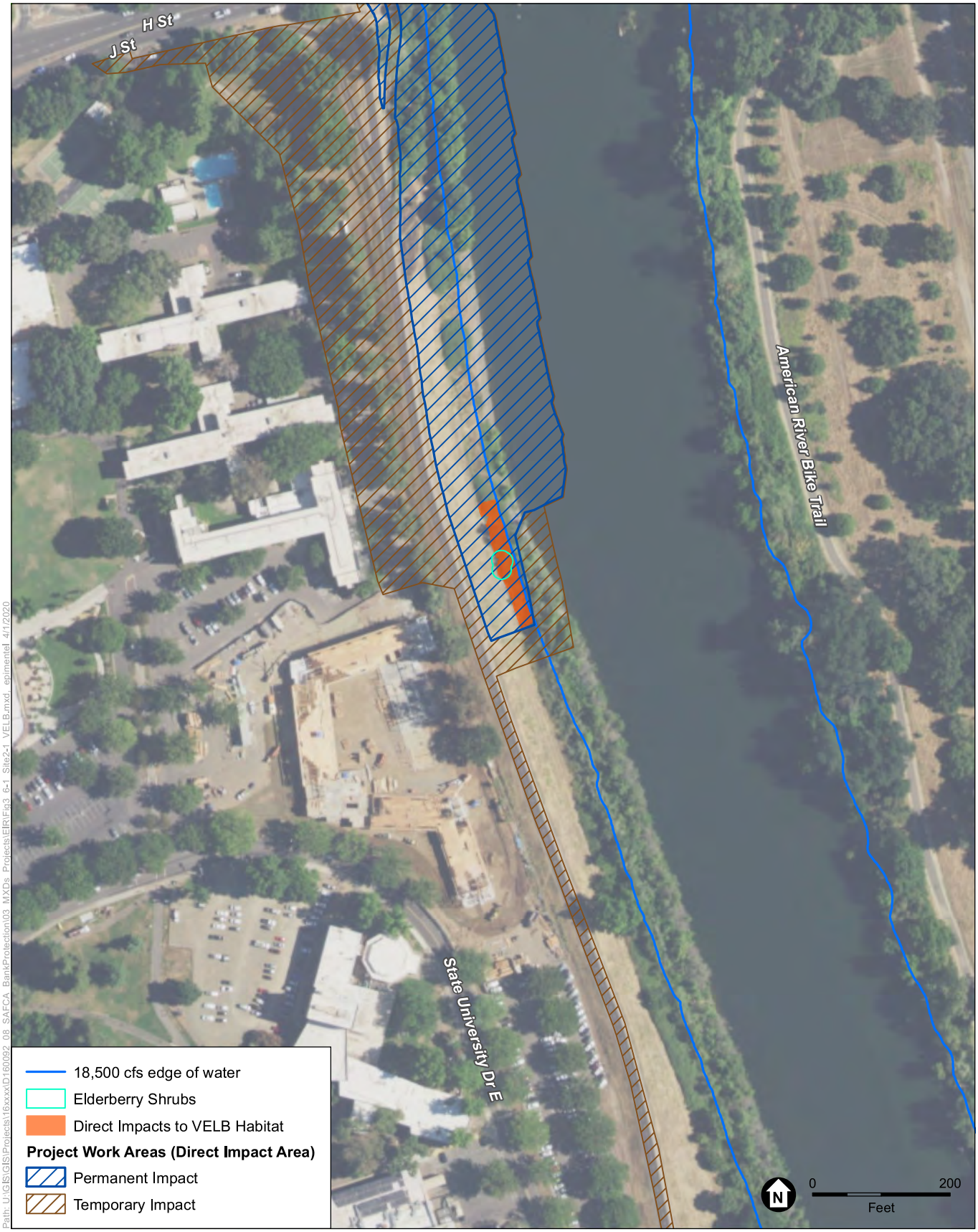
34 Talley, T. S., D. Wright, and M. Holyoak. 2006. *Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) 5-Year Review: Summary and Evaluation*. Prepared for U. S. Fish and Wildlife Service, Sacramento Office, Sacramento, California.

35 Talley, T. S., E. Fleishman, M. Holyoak, D. D. Murphy, and A. Ballard. 2007. Rethinking a rare-species conservation strategy in an urban landscape: The case of the valley elderberry longhorn beetle. Biological Conservation 135:21–32.

36 Holyoak, M., and M. Koch-Munz. 2008. The effects of site conditions and mitigation practices on success of establishing the Valley elderberry longhorn beetle and its host plant, blue elderberry. Environmental Management 42:444–457.

37 Vaghti, M. G., M. Holyoak, A. Williams, T. S. Talley, and A. K. Fremier. 2009. Understanding the Ecology of Blue Elderberry to Inform Landscape Restoration in Semiarid River Corridors. Environmental Management 43:28-37.

38 Vaghti, M. G., M. Holyoak, A. Williams, T. S. Talley, and A. K. Fremier. 2009. Understanding the Ecology of Blue Elderberry to Inform Landscape Restoration in Semiarid River Corridors. Environmental Management 43:28-37.



SOURCE: NHC, 2020; ESA, 2020

American River Common Features Project American River Contract 1

Figure 3.6-1
Elderberry Shrubs within the
Lower American River Subreach 2

ESA

Yellow-Billed Cuckoo

Section 3.8.1 (page 151) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. In addition, in May 2017 USFWS received a petition to delist the Western distinct population segment of the yellow-billed cuckoo. After reviewing the petition, USFWS determined in June 2018 that substantial scientific or commercially available data to support delisting had been provided and that further review of the potential delisting was warranted. The Western distinct population segment of the yellow-billed cuckoo is currently under 5-year review. Updated occurrence information is presented below.

Until very recently, the CNDDB's last documented occurrence of yellow-billed cuckoo in the vicinity of the Project Area was from the late 1800s. However, on July 27, 2019, a cuckoo vocalization was documented approximately 3 miles upstream on a heavily forested island in the American River.[39] A single vocalization was heard but no additional information was gathered. Based on habitat quality, this may have been a transient bird moving through from breeding sites along the Sacramento River.

The Project Area provides marginal remnant riparian habitat that may be used for foraging or dispersal (**Figure 3.6-2**). However, the riparian habitat in the Project Area does not meet the typical size requirements (25 contiguous acres or more) for home ranges of nesting yellow-billed cuckoos.[40]

Swainson's Hawk

Section 3.8.1 (pages 151–152) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. Updated occurrence information is presented below.

The closest CNDDB occurrence of Swainson's hawk is of a nesting pair approximately 0.5 mile west of the survey area. The pair was last observed nesting in 2011. A pair was observed in the same vicinity in 2012, but nesting was not confirmed. The most recently documented CNDDB occurrence, in 2017, was a nest approximately 1.5 miles west of the survey area. In addition, a nest has been regularly documented just upstream of Howe Avenue,[41] and a potential nesting pair was observed in May 2019 by a California Department of Water Resources survey team on the river's right bank just downstream of Watt Avenue, approximately 1.4 miles east of the survey area.[42]

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39 Ron Melcer Jr., Senior Environmental Scientist–Supervisor, Delta Stewardship Council, email communication with Gerrit Platenkamp, Project Manager, ESA, July 28, 2019.

40 U.S. Fish and Wildlife Service. 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.

41 K. C. Sorgen, Senior Natural Resources Specialist, Sacramento Area Flood Control Agency. Comments on an administrative draft of Wildlife Habitat Survey Report for American River Common Features 2016 Project American River Contract 1, September 10, 2019.

42 Lori Price, Environmental Scientist, Flood Projects Office, California Department of Water Resources. Comments on an administrative draft of Wildlife Habitat Survey Report for American River Common Features 2016 Project American River Contract 1, August 30, 2019.

The survey area and landscape within 0.5 miles was assessed for potential Swainson's hawk nesting and foraging habitat. The large trees in the riparian corridor and adjacent parks provide suitable nesting sites and annual grasslands and nearby parks provide suitable foraging habitat.

Bank Swallow

The bank swallow is State-listed as threatened. It is a neotropical migrant that arrives in California in May and breeds before returning to South America in late July or August. Swallows inhabit primarily riparian and lowland habitats with vertical banks, bluffs, and cliffs where they dig holes for nesting in sandy or fine-textured soil.[43] The species' range in California is estimated to have been reduced by 50 percent since 1900.[44] Bank swallow was formerly more common as a breeder in California. Now, only approximately 110–120 colonies remain in the state. Approximately 75 percent of the current breeding population in California occurs along the banks of the Sacramento and Feather Rivers in the northern Central Valley.[45]

A historical population of nesting bank swallows was documented in the CNDDB, approximately 0.5 miles downstream of the survey area. The most recent record for this location was from 1986. The closest recent (2017) CNDDB record is from near Knights Landing, 17 miles from the survey area. Although nesting habitat in the survey area is limited, as the banks are mostly covered in dense vegetation, there is high-quality foraging habitat that bank swallows may use.

Sacramento River Winter-Run Chinook Salmon

Section 3.8.1 (pages 154–157) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Central Valley Spring-Run Chinook Salmon

Section 3.8.1 (pages 156–158) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

California Central Valley Steelhead

Section 3.8.1 (pages 156, 157, and 159–160) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

North American Green Sturgeon

Section 3.8.1 (pages 156, 157, and 161–162) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

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43 California Department of Fish and Game. 1999. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

44 California Department of Fish and Game. 1999. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

45 California Department of Fish and Game. 1999. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

Path: U:\GIS\GIS\Projects\16xxxx\D160092_08_SAFCA_BankProtection\03_MXDs_Projects\EIR\Fig3_6-2_Site2-1_ImpactstoRiparianHabitat.mxd, enimentel, 4/1/2020

SOURCE: USDA, 2018; NHC, 2020; ESA, 2020

American River Common Features Project American River Contract 1

Figure 3.6-2
Project Impacts to Riparian Habitat

ESA

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Non-listed Special Status Wildlife Species

Western Pond Turtle

The western pond turtle is a California species of special concern. This moderate-sized aquatic turtle is commonly found in ponds, lakes, marshes, rivers, streams, and irrigation ditches with rocky or muddy substrates. Its habitat often exhibits shoreline basking areas that may or may not be bordered by aquatic vegetation. Aquatic sites are often within woodlands, grasslands, and open forests, between sea level and 6,000 feet in elevation. Pond turtles bask on logs or other objects when water temperatures are lower than air temperatures. Their nests are created in upland areas with friable soils, often up to 0.25 miles from an aquatic site.[46,47]

Western pond turtles are discontinuously distributed throughout California west of the Cascade-Sierran crest.[48] They were documented by the CNDDB within the nine-quadrangle area and were observed in the Project Area just downstream of the Campus Commons Golf Course, on river right, basking on a log in the water.[49]

Cooper's Hawk

Cooper's hawk is a CDFW watch list species. This medium-sized accipiter is a resident of wooded areas throughout California, with breeding described throughout the Coast Ranges and Sierra Nevada foothills. The Cooper's hawk forages mostly on small birds and mammals, although it also takes reptiles and amphibians. The species' peak nesting season is May through July, although nesting may occur any time from March to August.[50]

A Cooper's hawk nest was recorded by the CNDDB within one mile south of the Project Area in 2007.[51] Woodland habitat in and near the Project Area provides potential nesting opportunities for this species.

Great Egret

Great egret is a species protected under the Migratory Bird Treaty Act (MBTA). This species is a common yearlong resident throughout California, except for high mountains and deserts. They nest in large trees usually near water. Nests are often sheltered from prevailing winds and may be as high as 100 feet off the ground. Great egrets feed and rest in wetlands, and along the margins of estuaries, lakes, riverine features, mudflats, salt

46 Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

47 Zeiner, D. C., W. F. Laudenslayer Jr., and K. E. Mayer (comp. eds.). 1988. *California's Wildlife. Volume I: Amphibians and Reptiles.* California Statewide Wildlife Habitat Relationships System. Sacramento: California Department of Fish and Game.

48 Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

49 Environmental Science Associates. 2019. Wildlife Habitat Survey Report: American River Common Features Project American River Contract 1. Prepared for Sacramento Area Flood Control Agency. August 2019.

50 Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (eds.). 1990. *California's Wildlife. Volume II: Birds.* Sacramento: California Department of Fish and Game.

51 California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle, and surrounding eight quadrangles. Information accessed June 25, 2019.

ponds, and irrigated agricultural lands. There is an egret rookery located approximately 5 miles upstream of the Project Area.

Great Blue Heron

Great blue heron is a species protected under the MBTA. This species is commonly all year throughout most of California in shallow estuaries and emergent wetlands. They are less commonly found along riverine and rocky marine shorelines, croplands, pastures, and mountains. They feed predominantly on fish, but they also consume small rodents, amphibians, reptiles, crustaceans, and occasionally small birds. They usually nest in colonies on the tops of secluded large snags or live trees, usually among the tallest available. There is a heron rookery without 5 miles downstream of the Project Area.

Burrowing Owl

Section 3.8.1 (pages 152–153) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. Recent occurrence information is presented below.

The closest CNDDB occurrence, that is believed to be extant, is from 2006 and is approximately 3 miles to the south of the project at the old Army Depot. The levee and bike path along the project corridor in the Project Area, especially Site 2-2, consists of disturbed grasslands with small-mammal burrows and ground squirrel activity. This area provides potential nesting habitat for burrowing owl. During reconnaissance-level surveys, no burrowing owls or signs of occupied burrows were found.

White-Tailed Kite

Section 3.8.1 (page 153) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Purple Martin

Section 3.8.1 (page 153) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Other Breeding and Migratory Birds

The Federal Migratory Bird Treaty Act and California Fish and Game Code protect raptors, most native migratory birds, and breeding birds that could be present in the Project Area. The Lower American River Parkway corridor provides high-quality foraging and nesting opportunities for a variety of resident and migratory birds. Common raptor species that may nest in the Parkway's mature trees could include red-tailed hawk, red-shouldered hawk (observed), and great horned owl.

Wading birds such as the great egret and the great blue heron are known to nest upstream and downstream of the Project Area, and have been observed foraging in the Project Area. There were no rookeries observed in the Project Area.

Among the many passerine species observed in the Project Area that have the potential to nest are western scrub jay, acorn woodpecker, downy woodpecker, northern flicker, black phoebe, American robin, western bluebird, and ash-throated flycatcher. Cliff swallows

were observed nesting under the Howe Avenue Bridge. Purple martin, a California species of special concern, is also known to occur in the area and has the potential to nest in the Project Area. A full list of species observed in the Project Area is provided in Appendix A.

Pallid Bat

The pallid bat, a California species of special concern, occurs throughout California except in parts of the high Sierra and the northwestern corner of the state.[52] The pallid bat inhabits a variety of habitats, such as grasslands, shrublands, woodlands, and forests; however, it is most abundant in open, dry habitats with rocky areas for roosting. Pallid bats roost alone, in small groups, or gregariously.[53] Roosts include caves, crevices in rocky outcrops and cliffs, mines, trees, and various manmade structures (e.g., bridges, barns, porches); they generally have unobstructed entrances/exists and are high above the ground, warm, and inaccessible to terrestrial predators. Year-to-year and night-to-night roost reuse is common; however, bats may switch day roosts on a daily and seasonal basis.[54]

The pallid bat is the most widely described special status bat species in central California. No occurrences are reported within 5 miles of the Project Area, or in the nine-quadrangle area that includes the Project Area. However, during reconnaissance-level surveys, bats were observed using the H Street Bridge for a day roost. The bats were not identified to species, but the bridge may provide suitable roosting habitat for this species.

Western Red Bat

The western red bat is a California species of special concern. This is a riparian obligate species (i.e., a species dependent on riparian habitat) that is ubiquitous throughout California except in the northern Great Basin region. Western red bats roost individually in dense clumps of tree foliage in riparian areas, orchards, and suburban areas. They are primarily moth specialists, but forage for a variety of other insects. Individuals have been observed foraging around street lamps and floodlights in suburban areas.[55]

Based on its tendency to roost within tree foliage, this species may be intermittently present in the riparian and woodland habitat in the Project Area. However, roosting occurrences are not reported by the CNDDB within 5 miles of the Project Area or in the nine-quadrangle area that includes the Project Area.

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52 Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (eds.). 1990. *California's Wildlife. Volume III: Mammals.* Sacramento: California Department of Fish and Game.

53 Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

54 Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

55 Western Bat Working Group. 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

American Badger

The American badger is a California species of special concern. This species prefers open grasslands and riparian habitat in the valley areas, although it is present throughout multiple habitat types in California. Principal requirements seem to be sufficient food, friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground. In California, badgers range throughout the state, except for the humid coastal forests of northwestern California in Del Norte County and northwestern Humboldt County.[56]

Reconnaissance-level wildlife surveys of the Project Area in summer did not detect any badger excavations or other signs of species presence. This species was previously observed in the vicinity of the Project Area (2 miles to the south), but the observation is almost 30 years old. Nonetheless, suitable habitat is present in the Project Area in annual grasslands.

Central Valley Fall-/Late Fall–Run Chinook Salmon

Section 3.8.1 (pages 156, 157, and 158–159) of the ARCF GRR FEIS/FEIR describes the ecology and occurrence of this species in the Project Area.

Hardhead

Hardhead is a California fish species of special concern found at low to mid-elevations in relatively undisturbed habitats of larger streams with clear, cool water. This species prefers pools and runs with deep, clear water, slow velocities, and sand-gravel-boulder substrates. The range for hardhead extends from the Pit River in the north to the Kern River in the south. The species is common in the Lower American River.[57]

Western River Lamprey

Western river lamprey is a California species of special concern. This species prefers clean, gravelly riffles in permanent streams for adult spawning while larvae need sandy to silty backwaters or stream edges. Their range extends from just north of Juneau, Alaska, south to tributaries of the San Joaquin River. They have been observed in the Lower American River.[58]

Special Status Plant Species

Sanford's Arrowhead

Section 3.8.1 (page 162) of the ARCF GRR FEIS/FEIR describes the ecology and of this species in the Project Area. Updated occurrence information is presented below.

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56 Williams, D. F. 1986. *Mammalian Species of Special Concern in California*. Wildlife Management Division Administrative Report 86-1. Sacramento: California Department of Fish and Game. June 1986.

57 Moyle, P.B., R. M. Quiñones, J. V. Katz and J. Weaver. 2015. *Fish Species of Special Concern in California.* Third Edition. Sacramento: California Department of Fish and Wildlife. Available: https://www.wildlife.ca.gov/Conservation/SSC/Fishes. Accessed December 11, 2019.

58 Moyle, P.B., R. M. Quiñones, J. V. Katz and J. Weaver. 2015. *Fish Species of Special Concern in California.* Third Edition. Sacramento: California Department of Fish and Wildlife. Available: https://www.wildlife.ca.gov/Conservation/SSC/Fishes. Accessed December 11, 2019.

Sanford's arrowhead was observed in the Project Area during the special status plant surveys conducted by Environmental Science Associates in July 2019.[59] Four individual plants of Sanford's arrowhead were located in an area of mud substrate on the left (west) bank of the American River.[60]

Critical Habitat for Listed Wildlife Species

USFWS defines the term "critical habitat" in the Federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The Project Area is not within designated critical habitat for any listed terrestrial wildlife species, but is within designated critical habitat for Central Valley spring-run Chinook and California Central Valley steelhead.

The National Marine Fisheries Service (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 Project Area is within essential fish habitat for Chinook salmon.

3.6.2 Methodology and Basis of Significance

3.6.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.8.2 (pages 162–163) of the ARCF GRR FEIS/FEIR. Impacts on special status species in the Project Area were evaluated based on data collected from biological resources surveys conducted in 2018 and 2019 (Appendices A, B, and C) and from other resources such as the following:

- Aerial imagery.
- An updated list of special status wildlife species with potential to occur in or in the vicinity of the Project Area that was compiled from a nine-quadrangle search of the CNDDB.[61]
- A search of USFWS's Information for Planning and Consultation endangered species database.[62]
- Literature regarding the biological resources of the region.

[59] Environmental Science Associates. 2019. *American River Common Features 2016 Project American River Contract 1, Special-Status Plant Survey Report.* Prepared for U.S. Army Corps of Engineers, Central Valley Flood Protection Board, and Sacramento Area Flood Control Agency. November 2019.

[60] Moyle, P.B., R. M. Quiñones, J. V. Katz and J. Weaver. 2015. *Fish Species of Special Concern in California.* Third Edition. Sacramento: California Department of Fish and Wildlife. Available: https://www.wildlife.ca.gov/Conservation/SSC/Fishes. Accessed December 11, 2019.

[61] California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle, and surrounding eight quadrangles. Information accessed June 25, 2019.

[62] U.S. Fish and Wildlife Service. 2019. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Sacramento East U.S.G.S. 7 1/2 Minute Quads*. Species list generated June 25, 2019.

- Consultation with USFWS and NMFS.
- The Standard Assessment Methodology (SAM) model for fish species.

The biological resource surveys conducted in 2018 and 2019 examined the landside levee toe on both river right and river left, the levee slopes, and everything in between. In addition to assessing habitat conditions for special status species, they assessed the size, species, health, and location of trees. Detailed elderberry shrub surveys were also completed. Surveys for VELB included obtaining GPS point location data with sub-meter accuracy for elderberry shrubs with stems measuring greater than 1 inch in diameter at ground level. Biologists thoroughly searched for VELB exit holes by carefully inspecting the shrub stems. Holes were presumed to have been produced by the beetles if they were the appropriate size (7–10 millimeters wide) and shape (oval to cylindrical). The presence and number of VELB holes and the number of stems containing holes were recorded, along with visual estimates of shrub height and maximum diameter (canopy).

For this analysis, the project alternatives were determined to have a significant impact on special status species if project activities would have a substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive, or special species in local or regional plans or policies, or regulations, or by CDFW, USFWS, or NMFS. The impact analysis also considered the goals and objectives of the American River Parkway Plan and how project construction would affect those goals and objectives. Impacts on special status species were evaluated based on anticipated construction activities and changes to habitat types after construction of the project.

The SAM analysis used measurements of shaded riverine aquatic (SRA) habitat features in both existing (without-project) and designed (with-project) conditions. Shoreline surveys conducted in 2018 provided the without-project data and the 65 percent design plans provided the with-project data. The SAM analysis for individual fish species followed the approach used in the 2015 NMFS Biological Opinion (BO) for the ARCF 2016 Project.

3.6.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.8.2 (page 163) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to special status species if it would result in:

- Substantial direct or indirect reduction in growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or California Endangered Species Act;
- Substantial direct mortality, long-term habitat loss, or lowered reproductive success of Federally or State-listed threatened or endangered animal or plant species or candidates for Federal listing;

- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, plant species listed by the California Native Plant Society, or species of special concern or regionally important commercial or game species; or
- An adverse effect on a species' designated critical habitat.

Effects Not Evaluated Further

Section 3.6.2, *Environmental Setting*, above discusses all special status wildlife, fish, and plant species evaluated in this analysis and summarizes the potential for each of these species to be present in the Project Area. The wildlife, fish, and plant species that are not expected to occur or have low potential to occur (because the Project Area does not provide suitable habitat for the species, or because the species would not be expected to be present, despite otherwise occurring near the Project Area) are not analyzed further in this Supplemental EA/EIR.

3.6.3 Impact Analysis

3.6.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure due to seepage, slope stability, overtopping, or other erosion concerns. This analysis finds the same effects as are described in Section 3.8.3 (page 163) of the ARCF GRR FEIS/FEIR, which are summarized below.

Under the No Action Alternative, no construction-related impacts would occur. Conversely, if a levee failure were to occur, special status species would undergo substantial adverse effects as a result of the flood. The potential for loss of lives and property would require emergency action. The required emergency procedures could have significant effects on special status species, such as sedimentation and turbidity from emergency repair efforts and lack of proper best management practices (BMPs), permanent loss of SRA habitat as a result of rock placement, long-term loss of habitat for non-aquatic species, lack of reproductive success, and mortality. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.6.3.2 Proposed Action

The following impact analysis is drawn from Section 3.8.4 (pages 164–180) of the ARCF GRR FEIS/FEIR, as revised to reflect the Project Area and the impacts of the Proposed Action.

Valley Elderberry Longhorn Beetle

One elderberry shrub ("cluster" with eight stems would be directly affected by construction of Site 2-1 at the upstream end of the site. This shrub has no exit holes. The

area of riparian habitat within 25 meters (82 feet) of these shrubs is considered VELB habitat and it partially overlaps with the permanent impact area of Site 2-1. In this area, 0.10 acre of VELB habitat would be removed in the permanent impact area. 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 creating 0.30 acre of on-site and off-site VELB habitat. The affected shrub would be transplanted to one of the three elderberry shrub mitigation sites described in Chapter 2 (i.e., the Glenn Hall Park Mitigation Site, Rio Americano West Mitigation Site, or Rio Americano East Mitigation Site).

Operation and maintenance (O&M) of the Proposed Project by the American River Flood Control District could require the trimming of elderberry shrubs as described in Section 3.8.4 (page 165) of the ARCF GRR FEIS/FEIR. As part of long-term O&M, up to 0.5 acre of elderberry shrubs would be trimmed by the American River Flood Control District, and up to 25 acres over the life of the project (ARCF GRR FEIS/FEIR, Table 20). Trimming consists of cutting overhanging branches along the levee slopes on both the landside and waterside. Some shrubs may be located adjacent to the levee with branches hanging over the levee maintenance road. Up to a third of a shrub would be trimmed in a single season. Trimming would occur between November 1 and March 15. This loss of VELB habitat would be significant.

To offset this impact, USACE would implement Mitigation Measure VELB-1. Specifically, the mitigation for O&M impacts would be offset by development of off-site mitigation sites that would be designed in accordance with the 2017 Framework. In addition, each year the American River Flood Control District would document the amount of VELB habitat that they have trimmed and report that number to USACE to ensure compliance with the USFWS Biological Opinion. If the local maintaining agency has a need to exceed the amount of VELB habitat which needs to be trimmed or affected due to routine maintenance, then they would request that USACE reinitiate consultation on this biological opinion for those actions. With the implementation of the mitigation discussed above, O&M activities would result in less-than-significant impacts on VELB.

Western Yellow-Billed Cuckoo

As described in the Proposed Action effects discussion in Section 3.8.4 (page 167) of the ARCF GRR FEIS/FEIR, the Project Area is unlikely to support nesting western yellow-billed cuckoos because the riparian corridor is narrow, patchy, and frequented by park visitors. In addition, there are no records of the cuckoo nesting in the American River corridor. However, in some sections of the Parkway Project Area, riparian habitat could support foraging cuckoos. There has been only one recent incidental vocal detection upstream of the Project Area, on a densely vegetated island in the river (see Section 3.6.2 above). Construction of Site 2-1 would result in the loss of 10.43 acres of riparian habitat (Table 3.4-2). This loss of habitat would be a 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.

Swainson's Hawk

As described in Section 3.8.4 (page 168) of the ARCF GRR FEIS/FEIR, the Project Area possesses suitable roosting and nesting habitat for Swainson's hawk. Project construction could affect the riparian habitat used by this species for roosting and nesting. 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. The closest documented occurrence of Swainson's hawk nest activity was approximately 0.5 miles west of the survey area. This pair was last observed nesting in 2011. Long-term effects on Swainson's hawk nesting habitat could result from the loss of 8.47 acres of riparian habitat in the Permanent Project Area and the loss of 1.96 acres of riparian habitat within the temporary access areas, haul routes, and staging areas. This would be a significant impact on Swainson's hawk nesting habitat.

Before the start of construction, a pre-construction survey would be conducted in compliance with Swainson's Hawk Technical Advisory Committee Guidance.[63] 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.

The compensatory mitigation proposed to address impacts on western yellow-billed cuckoo would also compensate for the loss of Swainson's hawk nesting habitat within riparian habitat. Both species use riparian trees for nesting, and mitigation plantings to address project-related impacts on western yellow-billed cuckoo would also be compatible for Swainson's hawk. Suitable nesting habitat for Swainson's hawk would be temporarily reduced, as there would be a lag time between when trees would be removed or trimmed during project construction and when the replacement trees would be mature enough to support raptor nesting. There would be a net increase in the extent and quality of riparian habitat that would be 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 would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts associated with O&M would also be similar to existing conditions. O&M would involve activities such as mowing, herbicide application, and rodent control. Rodent control would be limited to preventing rodents from burrowing and undermining the levee. As such, rodent control actions are not expected to appreciably reduce the prey base for Swainson's hawk. Mowing in the Project Area may also increase the visibility of prey, thereby enhancing foraging efficiency for Swainson's hawk. Application of herbicides would be limited and is not expected to appreciably affect habitat conditions for Swainson's hawk (i.e., no loss of nesting trees or loss of grassland foraging habitat). O&M would involve limited vegetation trimming and

63 Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. May 31, 2000.

management to facilitate visual inspections of the levee. This vegetation trimming is expected to focus largely on shrubs and small, short trees whose presence may be concealing levee erosion issues. As such, vegetation management during O&M activities is not anticipated to affect large trees that represent suitable nesting habitat for Swainson's hawk. Because these activities would be short term, and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Bank Swallow

Bank swallows were historically observed along the Lower American River. Bank swallows could be directly affected if the project's proposed erosion protection measures were implemented during the species' nesting season (April 1 through August 31). If the species were present, such activities could weaken or collapse burrows, destroy nests, kill or injure adults or juveniles, cause nest abandonment, and result in other direct, adverse effects. Eroding banks support a large proportion of California's breeding population of bank swallows. Thus, measures to reduce erosion risk could indirectly affect bank swallows by removing suitable or potentially suitable nesting habitat and making the banks unsuitable for use by bank swallows. This impact on bank swallow would be significant. With implementation of Mitigation Measure BIRD-1, the impact on bank swallow from construction activities would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. In addition, these activities would be short term, and the resulting impacts would be temporary and less than significant.

Crotch Bumble Bee

Crotch bumble bees inhabit open grassland and scrub habitat. The species was historically common in much of the southern two-thirds of California, but is now largely absent from most of that area, especially in the center of its historic range (e.g., the Central Valley). Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources, and suitable overwintering sites for queens. The Crotch bumble bee nests primarily underground in abandoned holes in the ground made by rodents. They are generalist foragers. Very little is known about the overwintering sites of Crotch bumble bees, but overwintering habitat for bumble bees in general is often in soft, disturbed soil or under leaf litter or similar debris. Direct impacts of project construction could include mortality of individuals or nests as a result of activities such as vegetation removal and materials staging, or from construction equipment traffic. With implementation of Mitigation Measure BEE-1 identified below for Crotch bumble bee, the impact of construction on this species would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. In addition, these activities would be intermittent, and the resulting impacts would be temporary and less than significant.

Burrowing Owl

During their nesting period (February 1 through August 15), burrowing owls use small-mammal burrows that are present in and adjacent to the levees along the American River. California ground squirrel colony burrows were observed during reconnaissance surveys of the project site; these burrows are commonly used as nesting habitat by burrowing owls. Much of the herbaceous vegetation along the American River levees is relatively short, which burrowing owls prefer to scan for potential predators. These conditions make the construction footprint suitable habitat for nesting and foraging by burrowing owls. Ground disturbance (excavation and backfilling) could result in direct mortality or injury of burrowing owls because they use burrows and similar features for nesting that could be disturbed or destroyed during construction or installation of buried rock structures, installation of cut bank design, and biotechnical treatments. This would be a significant impact. With implementation of Mitigation Measure BIRD-1 identified below for nesting birds, the impact of construction on burrowing owl would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Ongoing rodent control could limit the available of small-mammal burrows often used by burrowing owl. However, because rodent control would be limited to areas where such burrows could threaten the integrity of the levee system, such actions are not expected to substantially reduce the availability of suitable burrows for burrowing owl along the American River. Mowing tall vegetation also improves foraging habitat conditions and accessibility to burrows. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

White-Tailed Kite

White-tailed kites usually nest in large native trees, although they also use non-native trees occasionally. Nest trees are generally at the edge of wooded habitat next to open fields. This species is known to occur on the south side of the project site. The Project Area contains numerous large riparian trees that provide suitable nesting conditions for this species. 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. This would be a significant impact. 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.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management during O&M activities is not anticipated to affect large trees, limiting the potential for such activities to affect nesting habitat for white-tailed kite.

Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Purple Martin

Purple martins inhabit riparian forest and woodland areas, nesting in tree cavities or crevices of cliffs. This species is also known to use infrastructure such as bridge and overpasses (e.g., in weep holes) or other manmade structures (e.g., lamp posts, traffic lights, birdhouses) for nesting. This species has been documented in the vicinity of the project site, and numerous other occurrences of nesting colonies have been reported in a 10-mile radius. Purple martins, particularly females, are sensitive to habitat fragmentation. By removing riparian forest, the project could continue to fragment suitable habitat for this species. 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 purple martins if any are nesting in the trees targeted for removal. This impact would be significant. With implementation of Mitigation Measure BIRD-1, the impact of construction on purple martin would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. The application of herbicides could also indirectly affect purple martins by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). Vegetation management during O&M activities would not likely affect nesting habitat for purple martin because it would not target the large trees (more specifically, large trees with cavities) used by this species. Mowing noise may temporarily disturb purple martins, but the activity would be only sporadic and short term.

Cooper's Hawk

Cooper's hawks are associated with wooded areas throughout California. Suitable nesting is present in and around the Project Area. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests located in and near construction activity areas if nesting Cooper's hawk are present. Vegetation removal could also result in direct take of nests, eggs, and nestlings of Cooper's hawk, if any are nesting in the trees targeted for removal. This would be a significant impact. With implementation of Mitigation Measure BIRD-1, the impact of construction on Cooper's hawk would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management during O&M activities is not anticipated to affect large trees, limiting the potential for such activities to affect nesting habitat for Cooper's hawk. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Other Breeding and Migratory Birds

Many non-listed bird species that are otherwise protected by the Migratory Bird Treaty Act and the California Fish and Game Code are expected to be present in the Project Area. These include common passerine, raptor, and wading bird species. General disturbance, including exposure to noise, vibration, and dust, could adversely affect nesting birds by altering their nesting behaviors (e.g., prompting adults to abandon eggs or chicks in nests). Construction activities would occur during a time period that overlaps with the nesting season for numerous bird species that are present in the Project Area. Construction work, including removal of riparian trees, during the nesting season could result in the destruction of nests and eggs and mortality of nestlings. This would be a significant impact. With implementation of Mitigation Measure BIRD-1, the impact of construction on non-listed birds protected by the Migratory Bird Treaty Act or the California Fish and Game Code would be reduced to a less-than-significant level.

O&M activities after construction are expected to be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management for O&M activities is not anticipated to affect large trees, limiting the potential for such activities to affect nesting birds. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Western Pond Turtle

Western pond turtle is present in a wide range of permanent and intermittent aquatic habitats including rivers, pond, wetlands, and irrigation ditches. This species nests in upland areas within one-quarter mile of aquatic habitat, and the turtles move frequently between aquatic and upland habitats in spring and summer to aestivate and nest. During brumation, this species burrows in leaf litter, soil, or mud.

Construction equipment accessing areas occupied by western pond turtle could strike turtles that are nesting, basking, or traversing upland habitat, resulting in mortality of these animals. Western pond turtles may also be crushed or entombed when construction equipment causes burrows to collapse. In addition, fuel, oil, other petroleum products, and other chemicals used during maintenance activities could be accidentally introduced into waterways. In sufficient concentrations, these contaminants would be toxic to western pond turtles and their prey species. This would be a significant impact. With implementation of Mitigation Measures TURTLE-1 and WQ-1, the impact of construction on western pond turtle would be reduced to a less-than-significant level.

O&M activities, including vegetation management along the levees, could involve mowing and trimming of small trees and shrubs using hand tools or machinery. Such activities could incidentally collapse burrows or crush nests on the ground, potentially affecting western pond turtle individuals or their habitat. Pond turtles could be killed or injured by mower blades when they are above ground (e.g., during periods of cooler temperatures, such as early mornings) and unable to leave areas being maintained because of their relative lack of mobility. Mowing equipment could crush or expose a buried western

pond turtle nest, potentially resulting in nest failure. This would be a significant impact. With implementation of Mitigation Measures TURTLE-1 and WQ-1, the impact of O&M on western pond turtle would be reduced to a less-than-significant level.

Pallid Bat

Construction activities could disturb riparian forest, which provides potential roosting habitat for pallid bat. Grassland habitat in the Project Area provides suitable foraging habitat for this species. Potential roosting habitat for pallid bat is also present underneath the Howe Avenue Bridge, the H Street Bridge, and the Guy West Bridge. 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 and pedestrian bridges 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.

O&M activities, specifically trimming or removal of woody vegetation along the levees, could indirectly and directly affect colonies of roosting pallid bats by resulting in the loss or modification of habitat. However, such management of woody vegetation is largely expected to avoid the mature riparian trees (larger than 4 inches in diameter at breast height) where bats are most likely to be present, minimizing the potential for O&M activities to affect roosting pallid bats. The application of herbicides could also indirectly affect pallid bats by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). However, the application of herbicides would be highly localized and would focus on helping to eradicate unwanted weedy plants in the Project Area. Thus, the application of herbicides as part of O&M for the proposed action is not anticipated to appreciably affect the supply of prey for pallid bat. The impact of O&M on pallid bat would be less than significant.

Western Red Bat

Western red bats may establish day roosts in the foliage of large cottonwood, oak, and willow trees in the Project Area, and maternal roosts may occur in large well-developed stands of riparian habitat. Potentially suitable riparian habitat is present in the Project Area; however, because there are no reported CNDDB occurrences of this species within 5 miles of the Project Area, the likelihood of activities under the proposed action to affect this species is limited. Tree removal in riparian habitat could affect western red bats if they are present. 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.

The potential effects of O&M under the proposed action on western bat are the same as those described previously for pallid bat. O&M activities, specifically trimming or removal of woody vegetation along the levees, could indirectly and directly affect roosting western red bats by resulting in the loss or modification of habitat. However, such management of woody vegetation is largely expected to avoid the mature riparian trees (larger than 4 inches in diameter at breast height) where bats are most likely to be present, minimizing the potential for O&M activities to affect roosting western red bats. The application of herbicides could also indirectly affect western red bats by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). However, the application of herbicides would be highly localized and would focus on helping to eradicate unwanted weedy plants in the Project Area. Thus, the application of herbicides as part of O&M for the proposed action is not anticipated to appreciably affect the supply of prey for western red bat. The impact of O&M on western red bat would be less than significant.

American Badger

Although there are no documented observations of American badger along the American River in recent decades, the potential remains for this species to be present in the Project Area based on the presence of suitable habitat. Potential impacts of the proposed action 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. Heavy machinery operating in the Project Area could compact the soil, making the ground less suitable for digging for badgers and their primary prey species. This would be a significant impact. Implementation of Mitigation Measure BADGER-1 would reduce this impact to a less-than-significant level.

O&M activities are expected to have only minor effects on habitat conditions for American badger. No widespread soil compaction is anticipated, and rodent control would result in only limited ground disturbance. Mowing work along the levees may displace badgers, but this effect would only be temporary because the activity would be temporary. Overall, the effect of O&M on American badger would be less than significant.

Sanford's Arrowhead

Sanford's arrowhead is an aquatic emergent herbaceous plant that grows in a variety of shallow freshwater habitats. This species was documented to be present in the Project Area during a focused rare-plant survey conducted in 2019 (Appendix B). Sanford's arrowhead plants could be crushed by construction equipment or trampled by construction personnel, resulting in damage to or mortality of the plants. Ground disturbance for the proposed action's bank improvement actions would increase the potential for Sanford's arrowhead plants to be unintentionally buried or removed. 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, USACE would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of known Sanford's arrowhead plants.

O&M activities after construction would involve activities such as mowing, herbicide application, and rodent control. Rodent control and mowing activities would increase the potential for Sanford's arrowhead to be unintentionally trampled, crushed, or ripped up by maintenance workers and equipment. O&M would involve limited vegetation trimming and management to facilitate visual inspections of the levee; this activity would increase the potential for Sanford's arrowhead to accidentally be damaged or killed. Overspray from herbicide applications may result in even accidental mortality of non-target plants, including Sanford arrowhead. However, the application of herbicides would be highly localized, and herbicides would not be sprayed near the known Sanford's arrowhead population within the Project Area. Thus, the application of herbicides as part of O&M for the proposed action is not anticipated to affect Sanford's arrowhead. The impact of O&M on Sanford's arrowhead would be less than significant.

Winter-Run Chinook Salmon

Construction impacts on winter-run Chinook salmon were drawn from the Proposed Action effects described in Section 3.8.4 (pages 170–173) of the ARCF GRR FEIS/FEIR. Long-term impacts were evaluated using SAM analysis. See Appendix C for details on updated SAM analysis methods and results. As described in the original NMFS BO,[64] SAM results are weighted relative response index (WRI) values that represent the difference between modeled fish responses to existing (without-project) conditions and designed (with-project) conditions. Negative WRI values indicate that existing conditions are better for fish and positive WRI values indicate that designed (proposed future) conditions are better for fish.

Project construction activities are not likely to affect winter-run Chinook salmon spawning or spawning habitat. Construction would avoid the primary migration period (December through July) and would be restricted to the channel edge, and the avoidance and minimization measures described below would be implemented. Winter-run Chinook salmon do not spawn in the Project Area (Moyle 2002). Therefore, no construction-related effects on winter-run Chinook salmon spawning or spawning habitat would occur.

Implementation of the erosion protection measures would result in adverse effects on juvenile and smolt winter-run Chinook salmon, their critical habitat, and essential fish habitat. Construction activities that increase noise, turbidity, and suspended sediment may disrupt feeding or temporarily displace fish from their preferred habitat. Physical damage to or harassment of listed fish species would be low during the construction months. Adults would not sustain any physical damage as a result of construction because their size, preference for deep water, and crepuscular migratory behavior would enable them to avoid most temporary, nearshore disturbance that occurs during typical daylight

64 National Marine Fisheries Service. 2015. 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. pp. 25–26.

construction hours. Overall, the impact of construction activities on winter-run Chinook salmon would be significant. With implementation of Mitigation Measures FISH-1, FISH-2, and FISH-3, this impact would be reduced to a less-than-significant level. Restricting in-water activities to a work window of July 1 through October 31 and implementing the avoidance and minimization measures described below would minimize, but not avoid, potential construction-related effects on juveniles and smolts.

Over the lifetime of the project, winter-run Chinook salmon juvenile habitat is expected to show a long-term positive response to the Proposed Action based on the American River SAM analysis when both instream woody material (IWM) and planted benches are incorporated into with-project conditions. The SAM analysis for Chinook salmon (including winter-run, spring-run, and fall-run ESUs) showed that the most negative WRI value was for juvenile migration and had a value of -334 feet, while for fry- and juvenile rearing the most negative WRI value was -119 feet (Appendix C), indicating a modeled temporary shortfall of SRA habitat.

Although winter and spring values of the WRI increase immediately above baseline after construction for juvenile rearing of Chinook salmon, the values for summer and fall remain below baseline for 15 years before they increase above baseline conditions, due to the time it takes after planting for vegetation to develop at Site 2-1. For juvenile migration the predicted recovery to baseline conditions is less than one year in spring and winter, with recovery in summer and fall taking 3 and 8 years, respectively. Therefore, although long-term habitat conditions at Site 2-1 for juvenile Chinook salmon are predicted to be substantially better than under baseline conditions, there would be a temporary adverse impact of the Proposed Action on juvenile Chinook salmon (including winter-run Chinook salmon) habitat. This impact would be significant.

Protection measures would generally provide long-term increases in bank shading at project sites. Short-term impacts on SRA habitat would be reduced to a less-than-significant level with implementation of Mitigation Measures SRA-1, which would provide for the creation of off-site SRA habitat.

Spring-Run Chinook Salmon

Construction impacts of the Proposed Action on spring-run Chinook salmon have not changed from those described in Section 3.8.4 (page 173) of the ARCF GRR FEIS/FEIR. Long-term impacts were evaluated using SAM analysis. See Appendix C for details on updated SAM analysis methods and results.

Adult spring-run Chinook salmon migrate up the Sacramento River from March through September, although most individuals have entered tributary streams by mid-June and would not be affected by construction activities. Similar to winter-run Chinook salmon, spring-run Chinook salmon typically spend up to 1 year rearing in freshwater before migrating to sea. Therefore, the potential for construction-related effects would be similar to those described above for winter-run Chinook salmon. Construction related impacts would have a significant impact on spring-run Chinook salmon. With implementation of

Mitigation Measures FISH-1, FISH-2, and FISH-3, this impact would be reduced to a less-than-significant level, as was described for winter-run Chinook salmon.

The Proposed Action would have a long-term beneficial effect on spring-run Chinook salmon habitat, but adverse impacts from vegetation removal on SRA habitat for juvenile salmon are expected to last for up to 15 years after construction, similar to what was described for winter-run Chinook salmon (see Appendix C). This would be a significant impact. Implementation of Mitigation Measure SRA-1, which would create off-site compensatory SRA habitat in the American River Parkway, would reduce this impact to a less-than-significant level.

Central Valley Fall/Late Fall–Run Chinook Salmon

Construction impacts on fall/late fall–run Chinook salmon have not changed from the Proposed Action effects described in Section 3.8.4 (pages 173–174) of the ARCF GRR FEIS/FEIR. Long-term impacts were evaluated using SAM analysis. See Appendix C for details on updated SAM analysis methods and results.

Fall/late fall–run Chinook salmon migrate into the Sacramento River and its tributaries from June through December; therefore, construction activities would coincide with most of the migration period. Construction activities that increase noise, turbidity, and suspended sediment may disrupt adult passage through the Project Area and may displace these fish by affecting their preferred habitat and spawning habitat. The project could represent a long-term loss of a small amount of potential spawning habitat because repairs would require covering bottom substrates with revetment. However, the extent of potential spawning area that might be affected would be very small. In general, it is expected that channel areas immediately adjacent to erosion protection sites do not support spawning riffles. Long-term changes on nearshore habitat are expected to have adverse effects on habitat that is important to all life stages of fall/late fall–run Chinook salmon. These impacts on fall/late fall-run Chinook salmon would be significant. With implementation of Mitigation Measures FISH-1, FISH-2, and FISH-3, this impact would be reduced to a less-than-significant level, as was described for winter-run Chinook salmon.

The Proposed Action would have a long-term beneficial effect on fall/late fall-run Chinook salmon habitat, but adverse impacts from vegetation removal on SRA habitat for juvenile salmon are expected to last for up to 15 years after construction, similar to what was described for winter-run Chinook salmon (see Appendix C). This would be a significant impact. Implementation of Mitigation Measure SRA-1, which would create off-site compensatory SRA habitat in the American River Parkway, would reduce this effect to a less-than-significant level.

California Central Valley Steelhead

Construction impacts on steelhead have not changed from the Proposed Action effects described in Section 3.8.4 (pages 174–175) of the ARCF GRR FEIS/FEIR. Long-term impacts were evaluated using SAM analysis. See Appendix C for details on updated SAM analysis methods and results.

In the Sacramento River, adult steelhead migrate upstream during most months of the year, beginning in July, peaking in September, and continuing through February or March. Adults use the river channel in the Project Area as a migration pathway to upstream spawning habitat. They may also use deep pools with instream cover as resting and holding habitat. Juveniles and smolts are most likely to be present in the Project Area during their downstream migration to the ocean, which may begin as early as December and peaks from January to May. For purposes of this analysis, rearing juvenile steelhead are assumed to use nearshore and off-channel habitat in the Project Area. The potential for construction-related effects on steelhead juveniles and smolts and their habitat would therefore be similar to that described above for winter-run Chinook salmon. The potential for construction-related effects on steelhead would be similar to that described above for adult winter-run Chinook salmon. These impacts on steelhead would be significant. With implementation of Mitigation Measures FISH-1, FISH-2, and FISH-3 this impact would be reduced to a less-than-significant level, as described for winter-run Chinook salmon.

Over the lifetime of the project, California Central Valley steelhead juvenile habitat is expected to show a long-term positive response to the Proposed Action, based on the SAM analysis when both instream woody material (IWM) and planted benches are incorporated into with-project conditions (Appendix C). The SAM analysis for California Central Valley steelhead showed that the most negative WRI value was for juvenile rearing and had a value of -151 feet (Appendix C), indicating a modeled temporary shortfall of SRA habitat. Juvenile steelhead migration showed an almost immediate increase in WRI values (Appendix C).

Although winter and spring values of the WRI increase immediately above baseline after construction for juvenile rearing of steelhead, the values for summer and fall remain below baseline for up to 13 years before they increase above baseline conditions, due to the time it takes after planting for vegetation to develop at Site 2-1. Therefore, although long-term habitat conditions at Site 2-1 for juvenile Chinook salmon are predicted to be substantially better than under baseline conditions, there would be a temporary adverse impact of the Proposed Action on juvenile Chinook salmon (including winter-run Chinook salmon) habitat. This impact is considered significant. Short-term impacts on SRA habitat would be reduced to a less-than-significant level with implementation of Mitigation Measures SRA-1, which would provide for the creation of off-site SRA habitat.

Potential spawning habitat is present in the American River in the ARCF GRR Project Area. Steelhead spawn in late winter and late spring, outside of the July 1 through October 31 work window. Therefore, project construction is unlikely to affect steelhead spawning or their spawning habitat.

Green Sturgeon

Green sturgeon critical habitat begins downstream of the Project Area, below the State Route 160 bridge, but there are no known occurrences in the LAR. Thus, green sturgeon are unlikely to be present during construction activities and no direct effects on sturgeon

from construction are anticipated. Any downstream indirect effect are also very unlikely to occur because the State Route 160 bridge is 3 miles downstream from the Project Area.

ARCF GRR FEIS/FEIR Mitigation Measures

The ARCF GRR FEIS/FEIR mitigation measures (pages 180-195) listed below that are incorporated into the Proposed Action, are revised as described below to reflect the revised Project Area and current agency guidance. Implementing these mitigation measures would reduce impacts on special status species to a less-than-significant level. Modifications of the ARCF GRR FEIS/FEIR mitigation measures are as follows.

- Mitigation for impacts on VELB was updated to reflect the 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*.[65]
- Nesting seasons and buffer distances for nesting birds were added.
- A rodent abatement buffer of 100 feet around nesting burrowing owls was added.
- The in-water work window to avoid impacts on listed fish species was changed from the period of August 1 to November 30 to the period of July 1 to October 31.

Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle. USACE would implement the following measures in accordance with the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017), to reduce effects on valley elderberry longhorn beetle:

Avoidance and Minimization Measures

To reduce direct and indirect impacts on shrubs that would not be transplanted and that occur within 50 meters (165 feet) of the project, the following mitigation measures would be implemented:

Fencing. All areas to be avoided during construction activities would be fenced and/or flagged as close to construction limits as feasible.

Avoidance area. Activities that may damage or kill an elderberry shrub (e.g., trenching, paving) may need an avoidance area of at least 6 meters (20 feet) from the dripline, depending on the type of activity.

Worker education. A qualified biologist would provide training for all contractors, work crews, and any on-site personnel on the status of the VELB, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance.

Construction monitoring. A qualified biologist would monitor the initial groundbreaking activities, vegetation removal, installation of protective fencing,

[65] U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.

and would be present during all transplanting and trimming activities. Weekly site visits would also be conducted to ensure all mitigation measures are being implemented and maintained. Additional monitoring may be required per the USFWS BO.

Timing. As much as feasible, all activities that could occur within 50 meters (165 feet) of an elderberry shrub would be conducted outside of the flight season of the VELB (March–July).

Trimming. Trimming may remove or destroy VELB eggs and/or larvae and may reduce the health and vigor of the elderberry shrub. To avoid and minimize adverse effects on VELB when trimming, trimming would occur between November and February and would avoid the removal of any branches or stems that are 1 inch or larger in diameter unless they were approved and compensated for by following the USFWS requirements.

Chemical Usage. Herbicides would not be used within the dripline of the shrub. Insecticides would not be used within 30 meters (98 feet) of an elderberry shrub. All chemicals would be applied using a backpack sprayer or similar direct application method.

Mowing. Mechanical weed removal within the dripline of the shrub would be limited to the season when adults are not active (August–February) and would avoid damaging the elderberry shrub.

Erosion Control and Revegetation. Erosion control would be implemented and the affected area would be revegetated with appropriate native plants.

Dust Control. Dust would be controlled by reducing speed limits to 10 miles per hour, regularly watering roads, and wetting down soil before removal and during placement.

Transplanting and Compensatory Mitigation

Affected elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level that could feasibly be transplanted in accordance with the 2017 Framework must be transplanted to a mitigation site as approved by USFWS. Elderberry compensation would be planted in the Parkway, but outside of the Project Area (off-site) because of construction timing. USACE would find areas in the Lower American River Parkway to either expand existing compensation areas or provide connectivity between areas of conserved VELB habitat. Sites within the Lower American River Parkway would be coordinated with the Sacramento County Department of Regional Parks and USFWS during the design phase of the project. Sites would be designed and developed in accordance with the criteria listed below before any effects on VELB habitat.

For impacts on 0.10 acres of VELB habitat, USACE would mitigate at a 3:1 ratio and create a total of 0.30 acres of riparian habitat off-site. The elderberry shrub that would be affected would be transplanted to either the Glenn Hall Park Mitigation Site, the Rio Americano West Mitigation Site, or the Rio Americano East Mitigation Site. These sites would be used for the transplantation and compensation for impacts on elderberry shrubs as described in the *Compensatory Mitigation* section below.

Monitor. A qualified biologist would be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures (as listed above).

Exit Holes. Exit-hole surveys would be completed immediately before transplanting. The number of exit holes found, the GPS location of the plant to be relocated, and the GPS location where the plant is transplanted would be reported to USFWS and to the CNDDB.

Timing. Elderberry shrubs would be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Transplanting during the non-growing season would reduce shock to the shrub and increase transplantation success.

Transplanting Procedure. Transplanting would follow the most current version of the ANSI A300 (Part 6) guidelines for transplanting shrubs (http://www.tcia.org/).

Trimming Procedure. Trimming would occur between November and February and should minimize the removal of branches or stems that exceed 1 inch in diameter.

Compensatory Mitigation

A Compensatory Mitigation Proposal would be prepared detailing the management of on-site and off-site lands. This plan would meet the standards for long-term management and protection of the site as outlined in USFWS's 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* and the Habitat Mitigation, Monitoring, and Adaptive Management Plan for the ARCF GRR (December 2015). The Compensatory Mitigation Proposal would be prepared and submitted by USACE to USFWS for approval. It would include habitat goals that would be suitable for the yellow-billed cuckoo and VELB, with specific information regarding site selection and development, a planting plan that includes appropriate buffers, success standards, monitoring specifications, and a reporting schedule with data as outlined in Section 6.1 and Appendix C of the 2017 Framework.

Site Selection and Development. Site selection would use a landscape-level approach that would benefit not only the VELB and yellow-billed cuckoo, but all

other species that rely on riparian habitat in the Parkway. Mitigation sites would focus on restoring riparian areas adjacent to the American River that would provide connectivity for VELB populations as described in the 2017 Framework.

Planting Plan. A planting plan would be prepared that would consider site specifics that would influence the success of the elderberry shrub and associated plantings and create a healthy riparian system. The plan would establish a diverse natural community with a complex vegetation structure that would support species present in the Project Area that rely on riparian habitat. The plan would be designed to achieve the following goals described in the 2017 Framework:

(1) Maximize the number of stems between 2 centimeters (0.8 inches) and 12 centimeters (4.7 inches).

(2) Minimize competition for sunlight and water. Native associates should be planted at a ratio of one native associate for every three elderberry plants.

(3) Achieve an average elderberry stem density of 240 stems per acre.

Buffers. An appropriate buffer would be established between mitigation lands and adjacent lands in accordance with the 2017 Framework.

Success Standards. Performance standards including survival rates, stem densities, and recruitment as outlined below and detailed in the 2017 Framework would be established and met to meet compensatory mitigation goals:

(1) A minimum of 60 percent of the initial elderberry and native associate plantings must survive over the first 5 years after the site is established. As much as feasible, shrubs should be well distributed throughout the site; however, in some instances, underlying geologic or hydrologic issues might preclude elderberry establishment over some portion of the site. If significant die-back occurs within the first 3 years, replanting may be used to meet the 60 percent survival criterion. However, replanting efforts should be concentrated in areas containing surviving elderberry plants. In some instances, overplanting may be used to offset the selection of a less suitable site.

(2) After 5 years, the site must show signs of recruitment. A successful site should have evidence of new growth on existing plantings as well as natural recruitment of elderberry shrubs. New growth is characterized as stems less than 3 centimeters (1.2 inches) in diameter. If no signs of recruitment are observed, the agency or applicant should discuss possible remedies with USFWS.

(3) The Performance Standards outlined in Appendix C, Table 2 for VELB mitigation would be complied with for monitoring years 2 through 7. If performance standards are not met, additional years would be required to meet the performance standards and monitoring years would start over.

Monitoring. The population of VELB, the general condition of the mitigation site, and the condition of the elderberry and associated native plantings in the mitigation site should be monitored at appropriate intervals. In any survey year, a minimum of two site visits between February 14 and June 30 of each year must be conducted by a USFWS-approved biologist. As indicated in the 2017 Framework, surveys must include:

(1) A search for VELB exit holes in elderberry stems, noting the precise locations and estimated ages of the exit holes. The location of shrubs with exit holes should be mapped with a GPS. Because adult VELB are rarely encountered, targeted surveys for adults are not required. However, surveyors should record all adult VELB seen. Record photographs should be taken for all observations of adult VELB and their location mapped with a GPS. All exit-hole or adult VELB observations should be reported to the CNDDB.

(2) An evaluation of the success standards outlined above.

(3) An evaluation of the adequacy of the site protection (fencing, signage, etc.) and weed control efforts on the mitigation site. Dense weeds and grasses such as Bermuda grass (*Cynodon dactylon*) are known to depress elderberry recruitment and their presence should be controlled to the greatest extent practicable.

(4) An assessment of any real or potential threats to VELB and its host plant, such as erosion, fire, excessive grazing, off-road vehicle use, vandalism, and excessive weed growth.

(5) A minimum of 10 permanent photographic monitoring locations, established to document conditions present at the mitigation site. Photographs should be included in each report.

Reports. In accordance with the 2017 Framework, yearly survey reports would be submitted to USFWS within 6 months of the final survey each year for monitoring years 2–7 (2017 Framework, Appendix C).

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds. To avoid and minimize effects on nesting birds, USACE would implement the following measures:

- Before ground disturbance, all construction personnel would participate in a USFWS-approved worker environmental awareness program. A qualified biologist would inform all construction personnel about the life history of Swainson's hawk, western yellow-billed cuckoo, western burrowing owl, bank swallow, and other relevant species, as well as the importance of nest sites and foraging habitat.

- Where feasible, construction and maintenance activities that have the potential to affect special status nesting birds and common nesting birds would occur at times of the year when adverse effects on those species would be avoided. If

activities are conducted outside the nesting seasons specified in **Table 3.6-4**, no additional measures are required to mitigate adverse effects on nesting birds.

TABLE 3.6-4
NESTING SEASON FOR SPECIAL STATUS AND COMMON NESTING BIRDS

Species	Nesting Season[a]
White-tailed kite	February 1 to September 30
Bald eagle	January 1 to August 31
Northern harrier	March 1 to August 31
Swainson's hawk	March 1 to September 15
Western yellow-billed cuckoo	June 1 to August 15
Burrowing owl	Year-round: February 1 to August 31 (nesting); September 1 to January 31 (wintering)
Bank swallow	April 1 to August 31
Purple martin	February 1 to August 31
Common nesting birds (raptors, passerines, herons, and egrets)	February 1 to August 31

- A breeding season survey for nesting birds would be conducted by a qualified biologist for all trees and shrubs to be removed or disturbed that are located within 500 feet of construction activities, including grading. Swainson's hawk surveys would be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30. An area with a radius of 0.5 mile from construction activities would be surveyed for Swainson's hawk nests. No fewer than three surveys would be completed in at least two survey periods, and at least one of these surveys would occur immediately before project initiation.[66] Western burrowing owl surveys would follow suggested guidelines set forth in CDFW's *Staff Report on Burrowing Owl Mitigation*[67] such as conducting three or more daytime survey visits at least 3 weeks apart during the peak of breeding season from April 15 to July 15. Other migratory bird nest surveys could be conducted concurrent with Swainson's hawk surveys, with at least one survey to be conducted no more than 48 hours from the initiation of project activities to confirm the absence of nesting. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation. If at any time during the nesting season construction stops for a period of 2 weeks or longer, pre-construction surveys would be conducted before construction resumes.

- If nesting birds have been identified within or adjacent to the construction footprint, USACE would establish avoidance buffers as indicated in

66 Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. May 31, 2000.

67 California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

Table 3.6-5. Reduced buffers may be implemented if recommended by the monitoring biologist and approved by CDFW (and/or USFWS if the species is Federally listed). Buffers would be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Specific buffer distances for burrowing owl, which vary depending on time of year and level of disturbance, are presented in **Table 3.6-6** in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation*.[68] Reduced buffers for burrowing owl may be implemented if recommended by the monitoring biologist, due to the nature of the activity, and if approved by CDFW.

TABLE 3.6-5
REQUIRED BUFFER DISTANCES FOR NESTING BIRDS*

Resource	Buffer Distance
White-tailed kite	0.5 mile
Bald eagle	0.5 mile
Swainson's hawk	0.25 mile (urban); 0.5 mile (rural or during use of heavy equipment)
Western yellow-billed cuckoo	500 feet
Bank swallow	300 feet
Common nesting birds	100 feet (passerines); 300 feet (raptors); 200 feet (heron or egret rookeries)

NOTE: If maintaining these buffers is not feasible they can be reduced in coordination with CDFW and/or USFWS.

TABLE 3.6-6
RECOMMENDED RESTRICTED ACTIVITY DATES AND SETBACK DISTANCES BY LEVEL OF DISTURBANCE FOR BURROWING OWLS

	Distance of Disturbance (feet) from Occupied Burrows		
Time of Year	Low Disturbance	Medium Disturbance	High Disturbance
April 1 to August 15	600	1,500	1,500
August 16 to October 15	600	600	1,500
October 16 to March 31	150	300	1,500

NOTES:
Low = Presence of maintenance staff on foot or in vehicles conducting work with light equipment (maintenance trucks, all-terrain vehicles).
Medium = Heavy equipment use with moderate noise levels (approximately 50–75 A-weighted decibels [dBA]).
High = Heavy equipment with high noise levels (more than 75 dBA).
SOURCE: California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

- Tree and shrub removal and work in other areas scheduled for vegetation clearing, grading, or other construction activities would not be conducted during the nesting season (generally February 15 through September 30,

[68] California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

depending on the species and environmental conditions for any given year) where feasible.

- During rodent abatement efforts, no fumigation, use of treated bait, or other means of poisoning nuisance animals would occur within 100 feet of areas where burrowing owls are known to occur (e.g., burrows with observed nesting owls).

Mitigation Measure TURTLE-1: Implement Measures to Avoid and Minimize Effects on Western Pond Turtle. The CVFPB would implement the following measures to avoid and minimize effects on western pond turtle:

- A qualified biologist would conduct a pre-construction survey within 7 days before the start of project activities. If no western pond turtles are observed, USACE would document that information for the file, and no additional measures would be required.

- Should any western pond turtles be detected on land during the pre-construction survey, the qualified biologist would identify the location using GPS coordinates. With prior CDFW approval, a qualified biologist may relocate any western pond turtles found on land or in aquatic habitat within the construction footprint to suitable aquatic habitat at least 200 feet away from the construction footprint.

- If western pond turtles are observed on land within the construction footprint during project activities, USACE would stop work within approximately 200 feet of the turtle, and a qualified biologist would be notified immediately. If possible, the turtle would be allowed to leave on its own and the qualified biologist would remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, with prior CDFW approval, the qualified biologist may capture and relocate the turtle unharmed to suitable habitat at least 200 feet outside the construction footprint. If a western pond turtle nest is unintentionally uncovered during project activities, work would stop in the vicinity of the nest and USACE would contact CDFW to determine the appropriate next steps.

Mitigation Measure PLANT-1: Implement Measures to Avoid and Minimize Effects on Special Status Plants. Sanford's arrowhead is the only special status plant observed to be present in the Project Area, based on a focused rare-plant survey conducted in July 2019. To avoid and minimize effects on Sanford's arrowhead, the CVFPB would implement the following measures:

- The location of Sanford's arrowhead plants identified during the 2019 rare-plant survey would be marked or fenced off as an avoided area during construction. A qualified biologist would establish a buffer of at least 25 feet around the Sanford's arrowhead plants. If a buffer of 25 feet is not possible, the next maximum possible distance would be fenced off as a buffer.

- If operations and maintenance activities are to occur near the Sanford's arrowhead plants, a qualified biologist would mark their location with pin flags. The qualified biologist would instruct all personnel conducting the O&M activities regarding the location, appearance, and extent of these plants and the importance of avoiding impacts on this species.

- Herbicides would not be used within 3 meters (10 feet) of a known Sanford's arrowhead plant. All chemicals would be applied using a backpack sprayer or similar direct application method.

Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species. To avoid and minimize effects on listed fish species, the following measures would be implemented:

- In-water construction activities (e.g., placement of rock revetment) would be limited to the work window of July 1 through October 31. If USACE needs to work outside of this window, it would consult with USFWS and NMFS.

- Erosion control measures (BMPs) would be implemented, including a Storm Water Pollution Prevention Plan and Water Pollution Control Plan, to minimize the entry of soil or sediment into the American River. BMPs would be installed, monitored for effectiveness, and maintained throughout construction operations to minimize effects on Federally listed fish and their designated critical habitat. Maintenance would include daily inspections of all heavy equipment for leaks.

- USACE would participate in an existing Interagency Working Group or work with other agencies to participate in a new Bank Protection Working Group to coordinate stakeholder input into future flood risk reduction actions associated with the ARCF 2016 Project, American River Contract 1.

- USACE would coordinate with NMFS during pre-construction engineering and design as future flood risk reduction actions are designed to ensure that conservation measures are incorporated to the extent practicable and feasible and projects are designed to maximize ecological benefits.

- USACE would include a Riparian Corridor Improvement Plan as part of the project, with the overall goal of maximizing the ecological function and value of the existing levee system in the Sacramento metropolitan area.

- USACE would implement an ARCF GRR Habitat Mitigation Monitoring and Adaptive Management Plan (HMMAMP) with an overall goal of ensuring that the conservation measures achieve a high level of ecological function and value. The HMMAMP would include:

    - Specific goals and objectives and a clear strategy for maintaining all project conservation elements for the life of the project.

    - Measures to be monitored by USACE for 10 years after construction. USACE would update its O&M manual to ensure that the HMMAMP is

adopted by the local sponsor to ensure that the goals and objectives of the conservation measures are met for the life of the project.

- Specific goals and objectives and a clear strategy for achieving full compensation for all project-related impacts on listed fish species.

- USACE would continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting annual meetings and issuing annual reports throughout the construction period as described in the HMMAMP.
- USACE would seek to avoid and minimize adverse construction effects on listed species and their critical habitat to the extent feasible, and would implement on-site and off-site compensation actions as necessary.
- For identified designated critical habitat, where feasible, all efforts would be made to compensate for impacts where they have occurred or in close proximity. USACE would develop and implement a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with implementation of the Proposed Action. USACE would continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting meetings and issuing annual reports throughout the construction period.
- USACE would minimize the removal of existing riparian vegetation and IWM to the maximum extent practicable. Where appropriate, removed IWM would be anchored back into place, or if not feasible, new IWM would be anchored in place.
- USACE would ensure that the planting of native vegetation would occur as described in the HMMAMP. All plantings must be provided with the appropriate amount of water to ensure successful establishment.
- USACE would provide a copy of the BO, or similar documentation, to the prime contractor, making the prime contractor responsible for implementing all requirements and obligations included in the documents and for educating and informing all other contractors involved in the project as to the requirements of the BO.
- A NMFS-approved Worker Environmental Awareness Training Program for construction personnel would be conducted by the NMFS-approved biologist for all construction workers before the start of construction activities. Written documentation of the training would be submitted to NMFS within 30 days of the completion of training.
- USACE would consider installing IWM of at least 40 percent shoreline coverage at all seasonal water surface elevations in coordination with the Interagency Working Group or the Bank Protection Working Group. The purpose is to maximize the refugia and rearing habitats for juvenile fish.

- USACE would protect in place all riparian vegetation on the lower waterside slope of any levee, unless removal is specifically approved by NMFS, following completion of project construction.

The following conservation measure from the 2015 NMFS Biological Opinion on the ARCF GRR is also incorporated into the Proposed Action:

- Screen any water pump intakes, as specified by the 2011 NMFS screening specifications.[69] Water pumps would maintain an approach velocity of 0.2 feet per second or less. Screen openings would be for a perforated plate: circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side, and slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1/16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area.

Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat. USACE would implement the following avoidance, minimization, and compensation measures:

- For identified designated critical habitat of listed fish species, where feasible, all efforts would be made to compensate for impacts where they have occurred, or elsewhere in the American River Parkway. Impacts on designated critical habitat, SRA habitat, and instream components combined and the compensation value of replacement habitat would be based on the interagency-approved SAM model used throughout the Sacramento River basin and Sacramento–San Joaquin Delta flood control system.

- USACE would incorporate compensation for SRA habitat losses either by constructing off-site compensation sites or purchase of credits at a NMFS-approved conservation bank, where appropriate, or by implementing a combination of the two. USACE would compensate for lost habitat using NMFS-approved mitigation actions at a 1:1 ratio prior to construction, 2:1 ratio during construction, or a 3:1 ratio if mitigation actions occur after construction. SRA habitat compensation sites would be established in coordination with NMFS and USFWS as part of consultation under Section 7 of the Endangered Species Act for the ARCF GRR, consistent with the American River Parkway Plan, and in coordination with the Sacramento County Department of Regional Parks. On-site created SRA habitat acreage would also be counted toward offsetting lost SRA habitat.

- Compensation sites would be monitored and vegetation would be replaced as necessary based on performance standards in the ARCF GRR HMMAMP.

[69] National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. NMFS, Northwest Region, Portland, OR. Available: https://www.dfw.state.or.us/fish/passage/docs/ fish_passage_design_criteria.pdf.

Summary

The mitigation measures in the ARCF GRR FEIS/FEIR, as modified above, would reduce the impacts on special status species addressed in that document to a less-than-significant level. The ARCF GRR FEIS/FEIR did not consider impacts on special status bat, American badger, or the Crotch bumble bee, a new candidate for listing under CESA, and therefore, there would be a residual significant impact. Implementation of the following new mitigation measures would reduce impacts from the Proposed Action on special status bats, American badger, and Crotch bumble bee to a less-than-significant level.

Additional Mitigation Measures

Implementation of the following additional Mitigation Measures BATS-1, BADGER-1, and BEE-1 would reduce impacts on special status bats, American badger, and the Crotch bumble bee, respectively, to a less-than-significant level.

> **Mitigation Measure BATS-1: Implement Measures to Protect Maternity Roosts of Special Status Bats.** The ARCF GRR FEIS/FEIR did not identify a significant impact associated with special status bats. Therefore, the following is a new mitigation measure. The USACE and CVFPB would implement the following measures to avoid and minimize effects on special status bats, including pallid bat and western red bat:
>
> - Wherever feasible, USACE would conduct construction activities outside of the active season for special status bats (May 1 to August 31).
> - If construction activities that could affect occupied special status bat roosts cannot be conducted outside the bats' active season, USACE would conduct pre-construction surveys for special status bats using a qualified biologist. Survey duration would be a minimum of 1 day and 1 evening.
> - If special status bats are found in trees in the area where project activities would occur, a minimum 100-foot avoidance buffer would be established around the roost/maternity until it is no longer occupied. High-visibility construction fencing would be installed around the buffer and would remain in place until the tree is no longer occupied by bats. The trees or structures would not be removed until a biologist has determined that the roost is no longer occupied by special status bats. If construction activities must occur within the avoidance buffer, then the activities would be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist would be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special status bats. If construction activities are stopped, USACE would consult with CDFW to determine appropriate measures to implement to avoid adverse effects.
> - For trees containing suitable bat roosting habitat that are planned for removal or trimming (irrespective of the time of year), such trees must be trimmed and/or removed in a two-phase removal system conducted over two

consecutive days. The first day (in the afternoon), limbs and branches would be removed, using chainsaws only. Removal activities must avoid limbs with cavities, crevices, or deep bark fissures, and remove only branches or limbs without those features. On the second day, the entire tree would be removed.

- A qualified biologist would conduct a pre-construction emergence survey for special status bats within 14 days before the start of work within 250 feet of the Howe Avenue Bridge, the Guy West Bridge, or the H Street Bridge. The survey would be conducted 1 hour before dusk to 1 hour after dusk to identify whether special status bats are occupying the bridges as day roosts. If special status bats are found roosting beneath any of these bridges and work would occur within 250 feet of the roost, one-way doors would be installed at roost entrances, allowing bats to exit but preventing them from entering, to encourage the bats to relocate. If maternity roosts are found, they would be avoided by at least 250 feet until the offspring have fledged. If avoidance is not feasible, additional mitigation would be developed in consultation with CDFW.

Mitigation Measure BADGER-1: Implement Measures to Avoid and Minimize Effects on American Badger. The ARCF GRR FEIS/FEIR did not identify a significant impact on American badger. Therefore, the following is a new mitigation measure. The USACE and CVFPB would implement the following measures to avoid and minimize effects on American badger.

- The CVFPB would conduct pre-construction clearance surveys for American badgers. These surveys would be conducted within 14 days of the start of any ground-disturbing activity. If no potential American badger dens are present, no further mitigation is necessary.

- If a potential American badger den is discovered but deemed inactive, the qualified biologist would excavate the den during the initial clearance survey to prevent badgers from reoccupying the den during the construction period.

- If found to be present, occupied badger dens would be flagged and ground-disturbing activities would be avoided within 50 feet of an occupied den. Maternity dens would be avoided during pup-rearing season (February 15 through July 1) and a minimum 200-foot buffer would be established.

- If avoidance of a non-maternity den is not feasible, badgers would be relocated by carefully evacuating the burrow (either by hand or using mechanized equipment, under the direct supervision of a qualified biologist) before or after the rearing season (February 15 through July 1). Any relocation of badgers would occur only after consultation with CDFW.

Mitigation Measure BEE-1: Implement Measures to Avoid and Minimize Effects on Crotch Bumble Bee. To avoid and minimize effects on Crotch bumble bee, the USACE and CVFPB would implement the following measure:

Before construction activities, a qualified biologist would conduct a pre-construction survey within the construction disturbance area for active Crotch bumble bee nests. If an active bumble bee nest is located, recommendations for avoiding or minimizing disturbance of the colony would be developed (e.g., establishing a buffer surrounding entry/exits and avoiding direct disturbance) in coordination with CDFW.

3.7 Cultural Resources

3.7.1 Environmental Setting

3.7.1.1 Regulatory Setting

The regulatory setting in the ARCF GRR Final EIS/EIR (page 195) is generally applicable to the analysis in this Supplemental EA/EIR and is not repeated.

3.7.1.2 Existing Conditions

The area in which cultural resources are identified and in which potential effects on historic properties are analyzed is called the Area of Potential Effects (APE). The APE for the Proposed Action includes the project footprint (the area where any ground-disturbance would occur), such as bank excavation, riprap placement, and staging areas. This also includes the area in which built-environment resources could be affected physically, including through vibration. No permanent substantial visual or auditory changes would occur as a result of project implementation; therefore, no area of indirect effect (the area in which changes in the visual or auditory setting may occur) has been identified. The vertical extent of the project APE is variable but would have a maximum depth of up to 26 feet below ground surface for bank excavation and placement of buried rock.

The APE for the Proposed Action contains numerous remains of past human activity ranging from Native American sites to flood control structures and may contain Native American human interments. Such materials can be found at many locations on the landscape. USACE has consulted with the State Historic Preservation Officer (SHPO) and other parties and as a result has executed a Programmatic Agreement. Compliance with Section 106 of the National Historic Preservation Act (Section 106) is guided by the *Programmatic Agreement Among the U.S. Army Corps of Engineers and the California State Historic Preservation Officer Regarding the American River Common Features Project, Sacramento and Yolo Counties, California* (PA). The PA establishes the process USACE would follow for compliance with Section 106 of the National Historic Preservation Act (NHPA), taking into consideration the views of the signatory and concurring parties and interested Native American Tribes. The PA stipulates time frames and document review procedures; delineation of project APEs; development of a Historic Properties Management Plan (HPMP) to guide identification, evaluation, and findings of effect; Historic Property Treatment Plans (HPTPs) to identify treatment for Historic Properties that would be adversely affected; a process to guide limited geotechnical investigations; Native American consultation procedures; and other processes and implementation procedures. The Project HPMP was completed in June 2017. The term

"historic property" refers to any cultural resource that has been found eligible for listing, or is listed, in the National Register of Historic Places (NRHP).

Native American Consultation

USACE is the lead Federal agency responsible for compliance with Section 106 of the NHPA and has conducted consultations with Native American Tribes and interested parties according to the PA. Several Native American Tribes and interested parties were contacted while developing the PA and provided with general information about the ARCF 2016 Project. Consultations specifically related to the project are a continuation of the ongoing process. All Native American Tribes identified in the PA have been contacted and provided a description of the project and requested to provide information on resources important to Native Americans. A Draft Identification and Evaluation Report was distributed to consulting Native American Tribes in April 2020. The Draft report proposed a finding of No Adverse Effect to Historic Properties. This finding is conditioned on developing a Monitoring and Discovery Plan. SHPO concurred in the finding of No Adverse Effect in a letter dated September 2, 2020. Consultation with Native American Tribes is ongoing.

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. As such, 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 my affect tribal communities. USACE has contacted the California Native American Heritage Commission (NAHC). USACE and the CVFPB would contact Native American contacts identified by the NAHC in an effort to identify cultural resources important to Native Americans, including Tribal Cultural Resources (TCRs) as defined in California Public Resources Code Section 21074, that may be present in the project area.

Identification of Potential Historic Properties

Records searches conducted at the North Central Information Center (NCIC) on October 21, 2019, and the Northwest Information Center (NWIC) on October 23, 2019, identified one recorded Historic Property within the APE: P-34-000509 (CA-SAC-482H), the American River levee.

Letters describing the proposed project and erosion counter measures APE were mailed to potentially interested Native American Tribes on October 8, 2019. Letters requesting information on the VELB mitigation locations were mailed in February 2020. Responses were received from the Shingle Springs Band of Miwok Indians, Wilton Rancheria, and the United Auburn Indian Community (UAIC) requesting additional information and to consult on the project. Consultation is ongoing; at this time, no specific information has

been received regarding potential historic properties, defined according to NHPA, or Native American–identified TCRs, defined according to State law.

Portions of the levee northeast of CSUS and southwest of Campus Commons as well as the Campus Commons Golf Course were surveyed on December 16, 2019, by GEI Registered Professional Archaeologists (RPAs). A survey of additional portions of the APE (primarily Paradise Beach) was carried out on December 20, 2019, by an RPA and UAIC Tribal Monitor. Survey of the proposed VELB transplant locations were conducted on March 10 and 11, 2020, by GEI Archaeologists, accompanied by a UAIC Tribal Monitor. These surveys were conducted to intensive standards (transects spaced no more than 15 meters apart). A Trimble 7 Series GPS unit capable of sub-meter accuracy was carried to record the location of any identified resources. Hard copy maps were used to ensure adequate coverage of the APE. Conversations between an RPA and UAIC Tribal Monitor on December 20, 2019, resulted in both parties agreeing that if cultural resources were present, they would likely be found during subsurface work or exploration and not on the surface.

Much of the APE is covered in pavement, landscaped, or consisting of very steep terrain and heavily vegetated. Paradise Beach, in contrast, is open and has excellent visibility. No cultural resources were identified during the pedestrian survey.

Based on the record search, background research, pedestrian survey, and consultation with interested Native American Tribes, USACE has found that the erosion protection project would result in No Adverse Effect to Historic Properties. SHPO concurred in the finding of No Adverse Effect in a letter dated September 2, 2020. Consultation on the associated VELB transplant areas is ongoing.

3.7.2 Methodology and Basis of Significance

3.7.2.1 Methodology

For those resources recommended to be eligible for listing in the NRHP/California Register of Historical Resources (CRHR), analysis of the effects or likely effects was based on evaluation of the changes to the existing Historic Properties that would result from implementing the Proposed Action. In making a determination of the effects on Historic Properties, consideration was given to:

- Specific changes in the characteristics of Historic Properties in the APE;
- The temporary or permanent nature of changes to Historic Properties and the visual area around the Historic Properties; and
- The existing integrity considerations of Historic Properties in the APE and how the integrity was related to the specific criterion (or criteria) that makes a Historic Property eligible for listing in the NRHP.

An assessment of effects for the purposes of this Supplemental EA/EIR and a determination of effect under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP. Resources that have been found or recommended to be ineligible for listing in the NRHP are not considered further in this Supplemental EA/EIR. Similarly, because isolated artifacts are generally not considered to be potentially eligible for listing in the NRHP and because an assessment of effects for the purposes of this Supplemental EA/EIR and a determination of effects under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP or that are listed in the NRHP, isolated artifacts are not considered to be Historic Properties and an assessment of effects on those resources is not necessary. Therefore, isolated artifacts are not considered further in this Supplemental EA/EIR.

This evaluation of potential effects on cultural resources is based on detailed information compiled since the 2016 ARCF GRR Final EIS/EIR was prepared, as described above under "Existing Conditions." The effects analysis considered the following factors related to the Proposed Action: project elements, including erosion counter measures, staging areas, potential effect mechanisms; the area that would be temporarily and permanently disturbed; known or potential locations of cultural resources, including locations identified by culturally affiliated Native Americans as cultural landscapes, Traditional Cultural Properties, sacred sites or other sensitive resources. In particular, the significance of each effect was evaluated in terms of its potential effect on resources that are eligible or potentially eligible for listing in the NRHP/CRHR. The mitigation identified in the 2016 ARCF GRR Final EIS/EIR for potential impacts on cultural resources included implementing stipulations of the ARCF PA.

USACE has not concluded determinations of NRHP eligibility based on consultation with SHPO and other ARCF PA Parties and therefore the impact analysis presented in this document does not reflect consensus findings under Section 106 of the NHPA as implemented through the ARCF PA. In accordance with the ARCF PA, confirmation of NRHP eligibility and findings of effect and appropriate mitigation would be made through consultation between USACE, SHPO, and other ARCF PA Parties as appropriate prior to initiating construction of the Proposed Action.

3.7.2.2 Basis of Significance

The following analysis uses the same basis of significance described in Section 3.9 (page 195) of the 2016 ARCF GRR Final EIS/EIR. Any adverse effects on cultural resources listed or eligible for listing in the NRHP (i.e., historic properties) are considered significant. 36 CFR 800.5(a)(1) provides criteria for assessing an adverse effect. Effects are considered to be adverse under Section 106 of the NHPA if they:

- Alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource for the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.

- Cause a substantial adverse change in the significance of a historic property through the physical demolition, destruction, relocation, or alteration of the historic property of its immediate surroundings such that the significance of the resource would be materially impaired.

Under California law (i.e., CEQA), effects on a historic resource or unique archaeological resource are considered to be adverse if they:

- Materially impair the significance of a historic resource or unique archaeological resource.
- Require the demolition of a historic resource.

Two additional significance thresholds not included in the 2016 ARCF GRR Final EIS/EIR are considered in this analysis. The project would be determined to result in a potentially significant effect if it would:

- Disturb any Native American human remains, including those interred outside of formal cemeteries; or
- Result in a substantial adverse change in the significance of a Tribal Cultural Resource (as defined in California Public Resources Code [PRC] Section 21074 and above) when compared against existing conditions.

3.7.3 Impact Analysis

3.7.3.1 No Action/No Project Alternative

Under the No-Action Alternative, USACE would not construct the proposed erosion counter measures. As a result, if a flood event were to occur, the Sacramento area would remain at the same level of risk of a possible levee failure due to erosion as today.

Continued severe erosion has the potential to destroy buried cultural resources or to expose them to the surface, increasing the possibility of damage from both natural forces and man-made impacts.

Potential levee failure and the resulting major flooding event could alter existing conditions by burying, destroying, or revealing cultural resources. Failure of the levee and subsequent flooding would result in greatly accelerated need for post-failure emergency repairs. Flooding could result in significant damage to cultural resources in a large geographic area through erosion and inundation. The required post-failure emergency repairs could have a large footprint, and the urgent need to immediately repair the levee would preclude proper planning and environmental protection. This effect could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible at this time.

3.7.4 Proposed Action

Erosion counter measures would include substantial ground disturbance, including bank excavation and riprap placement, and use of staging areas. These earthmoving activities could result in damage to or destruction of unknown or subsurface historic-period sites, prehistoric-period archaeological sites, and Native American–identified TCRs.

The only recorded Historic Property within the APE is P-34-000509 (CA-SAC-482H), the American River levee. The proposed action would have No Adverse Effect on the American River levee. In accordance with the ARCF PA, confirmation of NRHP eligibility and findings of effect and appropriate mitigation would be made through consultation between USACE, SHPO, and other ARCF PA Parties as appropriate prior to initiating construction of the Proposed Action.

To date, cultural resources investigations have not identified archaeological resources or TCRs (Tribal Cultural Resources are a type of resource recognized under CEQA but not Section 106 of the NHPA) in the APE. Although intensive pedestrian archaeological surveys have been conducted within the APE, Native American consultation has not been completed, and it is possible that unknown archaeological resources and TCRs could be identified in the APE during additional studies and consultation conducted in compliance with the PA and CEQA mitigation measures. Unknown archaeological resources and TCRs also could be discovered and inadvertently damaged during project construction.

Implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, and CR-5 described below would reduce the potential impact related to inadvertent damage to or destruction of presently undocumented archaeological resources and TCRs to a less-than-significant level under CEQA because the measures would require that if archaeological resources or TCRs are discovered prior to or during project-related construction, appropriate treatment and protection measures must be implemented.

Although no Native American human remains have been discovered in or near the APE, they could be encountered during earthmoving activities associated with the project. This potential impact would be significant. Implementing the new mitigation measure (Mitigation Measure CR-6) described below would reduce the impact related to inadvertent damage to or destruction of presently undocumented human remains to a less-than-significant level because it requires that if human remains are discovered during project-related construction activities, disturbances in the area of the find must be halted and appropriate treatment and protection measures must be implemented, all in consultation with the California Native American Heritage Commission (NAHC), Most Likely Descendant (MLD), and landowners, in compliance with California Health and Safety Code Section 7050 et seq. and PRC Section 5097.9 et seq.

3.7.4.1 Avoidance, Minimization, and Mitigation Measures

The following mitigation measures augment the mitigation identified in the ARCF GRR Final EIS/EIR, including actions to address TCRs under CEQA and specifically address discovery of archaeological resources and human remains. If the project is implemented, USACE and the CVFPB would implement the measures as described.

Mitigation Measure CR-1: Resolve Adverse Effects through a Programmatic Agreement and Historic Properties Treatment Plan. A Programmatic Agreement has been executed for the ARCF Project. A Historic Properties Treatment Plan (HPTP) would be developed if the proposed action is found to result in adverse effects.

Mitigation Measure CR-2: Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan. In accordance with the procedures described in Section 9.2 of the ARCF HPMP, an archaeological discovery plan would be developed for the Proposed Action. The discovery plan would specify what actions must be taken by the contractor in the event of an archaeological discovery and describe what actions USACE may take in the event of a discovery.

In accordance with the procedures described in Section 9.3.9 of the ARCF HPMP, an archaeological monitoring plan would be developed for the Proposed Action. This plan would identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring, and would include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials.

Mitigation Measure CR-3: Conduct Cultural Resources Awareness Training. In accordance with the procedures described in Section 9.1 of the ARCF HPMP, USACE would require the contractor to provide a cultural resources and TCRs sensitivity and awareness training program for all personnel involved in project construction, including field consultants and construction workers. The training would be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology, as well as culturally affiliated Native American tribes. USACE may invite Native American representatives from interested culturally affiliated Native American tribes to participate. The training would be conducted before any project-related construction activities begin in the APE and would include relevant information regarding sensitive cultural resources and TCRs, including applicable regulations, protocols for avoidance, and consequences of violating Federal and State laws and regulations. The training would also describe appropriate avoidance and impact minimization measures for cultural resources and TCRs that could be located in the APE, and would outline what to do and whom to contact if any potential cultural resources or TCRs are encountered. The training would emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and would discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

Mitigation Measure CR-4: Implement Procedures for Inadvertent Discovery of Cultural Material. If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, building remains), TCRs, sacred sites, or landscapes is made at any time during project-related construction activities, USACE in consultation with the CVFPB and other interested parties would develop appropriate protection and avoidance measures where feasible. These procedures would be developed in accordance with the ARCF PA and ARCF HPMP, which specifies procedures for post-review discoveries. Additional measures, such as development of HPTPs prepared in accordance with the PA and HPMP, may be necessary if avoidance or protection is not possible.

Mitigation Measure CR-5: Evaluate Any Tribal Cultural Resources Discovered and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects. California Native American Tribes that are traditionally and culturally affiliated with the geographic area in which the project is located may have expertise regarding their TCRs (PRC Section 21080.3.1). Consistent with the California Natural Resources Agency's Tribal Consultation Policy, culturally affiliated Tribes would be consulted concerning TCRs that may be affected, if these types of resources are discovered before or during construction. Consultation with culturally affiliated Tribes would focus on identifying measures to avoid or minimize impacts on any such resources discovered during construction. If TCRs are identified in the APE before or during construction, the following performance standards would be met before any further construction and associated activities that may result in damage to or destruction of TCRs:

- Each identified Tribal Cultural Resource would be evaluated for CRHR eligibility through application of established eligibility criteria (14 CCR 15064.636), in consultation with interested Native American Tribes.
- If a Tribal Cultural Resource is determined to be eligible for listing in the CRHR, USACE, in consultation with the CVFPB, would avoid damaging the Tribal Cultural Resource in accordance with PRC Section 21084.3, if feasible. If the CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts on a Tribal Cultural Resource or alternatives that would avoid significant impacts on a Tribal Cultural Resource. These measures may be considered, where feasible, to avoid or minimize significant adverse impacts:
    i. Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

ii. Treat the resource with culturally appropriate dignity, taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:

a. Protect the cultural character and integrity of the resource.

b. Protect the traditional use of the resource.

c. Protect the confidentiality of the resource.

d. Establish permanent conservation easements or other interests in real estate, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.

e. Protect the resource.

Mitigation Measure CR-6: Implement Procedures for Inadvertent Discovery of Human Remains. The roles and responsibilities of USACE during the response to the inadvertent discovery of human remains are outlined in the HPMP. To minimize adverse effects from encountering human remains during construction, the CVFPB would implement the following measures:

- In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the CVFPB would consult with USACE, and USACE would immediately halt potentially damaging excavation in the area of the burial and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the archaeologist and the NAHC-designated MLD, in consultation with the landowner, would determine the ultimate treatment and disposition of the remains.

- Upon the discovery of Native American human remains, USACE, in coordination with the CVFPB, would require that all construction work must stop within 100 feet of the discovery until consultation with the MLD has taken place. The CVFPB would lead consultation with the MLD, in coordination with USACE. The MLD would have 48 hours to complete a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond

the initial 48 hours to allow for the discovery of additional remains. The following is a list of site protection measures that the CVFPB would employ:

- Record the site with the NAHC or the appropriate Information Center.
- Record a document with the county in which the property is located.
- Rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance. Reburial of the remains would be completed by the CVFPB or its authorized representative. If the NAHC is unable to identify an MLD, or if the MLD fails to make a recommendation within 48 hours after being granted access to the site, the CVFPB or its authorized representative may reinter the remains in a location not subject to further disturbance. If the CVFPB rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to the CVFPB, the CVFPB would implement mitigation to protect the burial remains. Construction work in the vicinity of the burials would not resume until the mitigation is completed.

Summary

The ARCF GRR FEIS/FEIR concluded that mitigation measures would reduce potential impacts of the project on cultural resources under NEPA to a less-than-significant level because under NEPA and the NHPA, any significant effect that would result from the implementation of the project would be reduced to a less-than-significant level, as adverse effects would be resolved by implementing the PA. Therefore, the impacts of the Proposed Action would under NEPA also be less than significant with mitigation, through implementation of the PA. The ARCF GRR FEIS/FEIR also concluded that under CEQA the impacts on historical and unique archaeological resources as a result of the project would be significant and unavoidable. By incorporating mitigation measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6, the Proposed Action would have a less-than-significant impact with mitigation under CEQA.

3.8 Transportation and Circulation

3.8.1 Environmental Setting

3.8.1.1 Regulatory Setting

Section 3.10 (page 219) of the ARCF GRR FEIS/FEIR identified Federal, State, and local regulations that apply to transportation and circulation. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations and described the status of compliance with those laws and regulations. There are no additional applicable laws and regulations.

3.8.1.2 Existing Conditions

Section 3.10 of the ARCF GRR FEIS/FEIR (pages 220 through 224) describes the regional and local setting in the ARCF 2016 Project, American River Contract 1 (Proposed Action) and vicinity. The following provides additional information specific to the Project Area.

The Project Area would be accessed from the State highway system from U.S. 50 and Business 80/Capital City Freeway. The nearest highway interchanges to the Project Area would include the following:

- U.S. 50 and Howe Avenue
- Business 80/Capital City Freeway and Exposition Boulevard
- Business 80/Capital City Freeway and Arden Way

In addition to the major arterial roadways used to access the Project Area described in the ARCF GRR FEIS/FEIR, the Proposed Action would also use Exposition Boulevard to access the Project Area.

In addition, access to the Project Area would require the use of minor arterial and collector roadways. In East Sacramento, Carlson Drive, J Street, Elvas Avenue, and College Town Drive would provide access to Site 2-1 from Howe Avenue, Folsom Boulevard, and Fair Oaks Boulevard.

3.8.2 Methodology and Basis of Significance

3.8.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.10.2 (page 224) of the ARCF GRR FEIS/FEIR. The methodology anticipated that the levee improvements along the American River, including the Project Area, would generate intermittent substantial volumes of construction traffic, due to earthwork and delivery of materials. Operations of project alternatives would generate traffic volumes for maintenance activity that would be similar to traffic volumes for maintenance generated under existing conditions. Key effects were assumed and evaluated based on environmental conditions in the Project Area and the magnitude, intensity, and duration of activities related to construction and operation of the Proposed Action.

3.8.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.10.2 (page 224) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to transportation and circulation if it would:

- Substantially increase traffic in relation to existing traffic load and capacity of the roadway system;

- Substantially disrupt the flow of traffic;
- Expose people to significant public safety hazards resulting from construction activities on or near the public road system;
- Reduce the supply of parking spaces sufficiently to increase demand above supply;
- Cause substantial deterioration of the physical condition of nearby roadways;
- Result in inadequate emergency access; or
- Disrupt railroad services for a significant amount of time.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted. As a result, this analysis also takes into consideration the following modified significance criteria:

- Conflict or inconsistency with State CEQA Guidelines Section 15064.3.
- Conflict with a program, plan, or ordinance dealing with alternative modes of transportation (i.e., decrease the performance or safety of alternative modes of transportation).
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Effects Not Evaluated Further

Effects under each of the significance criteria identified in this section are evaluated in the impact analysis below. Some significance criteria are not applicable to the Proposed Action.

3.8.3 Impact Analysis

3.8.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the proposed action would not be implemented, and the Sacramento metropolitan area would continue to have an unchanged risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would occur, which would require the operation of a notable number of emergency vehicles and construction equipment. In addition, under the No Action/No Project alternative, if a flood event were to occur, roadways and railroads could be inundated with floodwaters, causing disruptions in traffic and deterioration of the roadway condition. These effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.8.3.2 Proposed Action

Traffic Load and Capacity

Section 3.10 (pages 224 through 229) of the ARCF GRR FEIS/FEIR analyzed the impacts on transportation and circulation associated with construction of levee improvements throughout the Sacramento area, including construction of levee improvements in the Project Area. The ARCF GRR FEIS/FEIR identified that implementation of the proposed levee improvements would require hauling construction equipment and materials along highways and local roads such as Watt Avenue, Fair Oaks, Boulevard, Howe Avenue, Folsom Boulevard, as well as local minor arterial streets to access the construction sites. The ARCF GRR FEIS/FEIR transportation and circulation impact analysis identified that construction of proposed levee improvements would intermittently generate substantial volumes of traffic due to the earthwork involved and the need for materials deliveries and would result in significant temporary and short-term impacts.

In addition, construction of levee improvements on the American River would require trucks to enter the American River Parkway, and the increased traffic in the Parkway would result in significant temporary and short-term impacts on recreational users, bicycle commuters, and residents adjacent to the levee structure. Outside of the Parkway, hauling on residential roads to access the Parkway would result in significant impacts temporary and short-term to residents along the selected routes. The following discussion provides additional details on transportation and circulation effects of the Proposed Action that was not available when the ARCF GRR FEIS/FEIR was prepared.

Site Preparation and Mobilization

Site preparation for the Proposed Action would begin with trimming and/or removal of trees where construction access and activities would occur at the erosion protection site. After these activities, mobilization would include building temporary access roads, preparing staging areas, rerouting the gravel levee crest road and levee toe maintenance road, and installing signage for traffic and alternate transportation routes that would be affected by construction activities.

Site Access and Haul Routes

Haul routes for riprap, bedding, gravel, and IWM would travel to the site from either Interstate 80 (I-80) to the north or from U.S. Highway 50 to the south. The neighborhoods within the area would be notified of haul routes, ingress and egress points, staging areas, detours, lane closures (if any), and closed recreational areas (including bike paths) approximately one week prior to commencement of construction activities.

As depicted on Figure 2-7 and Figure 2-8 in Chapter 2, *Alternatives*, haul trucks would travel to the staging area at the downstream end of the project site by traveling along Carlson Drive, directly to the project site, or along the existing Regional Transit bus line through the River Park neighborhood and unload materials at the staging area at Paradise Beach, adjacent to Glenn Hall Park. Haul trucks leaving the staging area at this location would continue to use the direct route along Carlson Drive or the Regional Transit route

to exit the River Park neighborhood and use the H Street Bridge to access Howe Avenue back to the freeways. Haul trucks delivering materials to Site 2-1 would use the Carlson Drive route into and out of River park approximately 65 to 75 percent of the time, while the remaining would use the Regional Transit route. Internal transfer dump trucks would be loaded with material deposited at the staging area and drive along the project site to deposit materials where needed using the top road along the top of the levee or the maintenance road along the landside toe of the levee. Some transfer dump trucks and other construction vehicles and equipment may exit through the Seventh-Day Adventist Church parking lot, at 6045 Camellia Avenue, except for Saturdays, or travel further upstream using the bike path and exit onto State University Drive or E.A. Fairbairn Drive, to exit and travel to back to the project site using surface streets or to travel to other sites, as needed.

Anticipated Construction Traffic Volumes and Distribution

Construction traffic associated with the Proposed Action would result from the transport of construction personnel, materials, and equipment to and from the project site. The majority of construction traffic volumes would be associated with the delivery of material and supplies to staging areas, and export of fill to off-site locations. **Table 3.8-1** provides a summary of haul trips, as they would be anticipated to occur throughout the varying construction phases, based on a 32 cy haul truck size.

As shown in Table 3.8-1, the Proposed Action would include overlapping construction phases. In total, the Proposed Action would result in approximately 12,130 haul trips, based on the anticipated size of haul vehicles, in addition to the transport of personnel and equipment to and from the sites. Haul trips would begin in approximately May 2021, and continue through October 2021. The anticipated peak haul trips per hour would take place from May through July. Based on an assumption of evenly distributed truck trips across an 11-hour workday, the construction phase of the Proposed Project could be anticipated to add up to 19.7 truck trips per hour along the proposed haul routes this would be a significant and unavoidable impact.

TABLE 3.8-1
HAUL TRIP TRAFFIC VOLUMES BASED ON 32-CUBIC-YARD TRIP LOADS

	Total Imported Materials		Total Haul Trips			Estimated Trips / Hour					
			Trips to Site	Trips Leaving Site	Combined Total	May	Jun	Jul	Aug	Sep	Oct
IWM	300	trees	15	15	30	0.0	0.0	0.0	0.2	0.2	0.2
Riprap Rock Haul	179,100	cy	5,597	5,597	11,194	17.0	17.0	17.0	17.0	17.0	17.0
Exported Material	14,500	cy	201	201	403	1.2	1.2	1.2	0.0	0.0	0.0
TOTAL			**6,056**	**6,056**	**12,130**	**19.7**	**19.7**	**19.7**	**17.1**	**17.1**	**17.1**

NOTES:
1 Haul trucks for riprap materials are assumed to have a capacity of 32 cubic yards per trip.
2 Trips/hour assumes 11 working hours per day (7:00 a.m. to 6:00 p.m.)
3 1 ton of riprap materials is assumed to have a volume of 1.4 cubic yards.

SOURCES: CVFPB and SAFCA, 2019; Environmental Science Associates, 2020.

Safety Hazards

While the transportation and circulation analysis in the ARCF GRR FEIS/FEIR did not specifically evaluate public safety hazards resulting from construction activities on or near the public road system, this topic was addressed in the mitigation measure detailed below.

Without appropriate safeguards, implementation of Proposed Project could expose people to significant public safety hazards resulting from construction activities on or near the public road system. Mitigation measures identified in the ARCF GRR FEIS/FEIR are incorporated into the Proposed Action, including the requirement that safe pedestrian and bicyclist access be maintained around the construction areas at all times, the requirement that construction areas would be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and the requirement that all stationary equipment would be located as far away as possible from areas where bicyclists and pedestrians are present. Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action would ensure that impacts related to exposure of people to significant public safety hazards resulting from construction activities on or near the public road system would be less than significant.

Parking Demand

The ARCF GRR FEIS/FEIR determined that construction of levee improvements would require hauling construction equipment and materials along highways and local roads that provide access to the project levees, but the construction actions are not expected to result in a reduction of parking availability, since construction vehicles would be required to park in designated staging areas, as specified in the mitigation measure provided below.

Without appropriate safeguards, implementation of Proposed Project could reduce the supply of parking spaces sufficiently to increase demand above supply, including parking spaces located near construction and staging areas. Mitigation measures identified in the ARCF GRR FEIS/FEIR are incorporated into the Proposed Action, including the requirement that the construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site. Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action would ensure that impacts related to the reduction of parking spaces sufficiently to increase demand above supply would be less than significant.

Deterioration of Roadways

The ARCF GRR FEIS/FEIR determined that construction of the levee improvements would result in a substantial increase in traffic on local roadways associated with truck

haul trips during construction activities, and the haul trucks could cause additional damage or deterioration to roadway conditions.

Without appropriate safeguards, implementation of Proposed Project, which would deploy substantial numbers of heavy duty trucks hauling heavy loads of soil, rock, and other materials, could cause substantial deterioration of the physical condition of nearby roadways, including potholes, fractures, or other damages. Mitigation measures identified in the ARCF GRR FEIS/FEIR are incorporated into the Proposed Action, including the requirement that the construction contractor assess damage to roadways used during construction and repair all potholes, fractures, or other damages. Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action would ensure that impacts related to substantial deterioration of the physical condition of nearby roadways would be less than significant.

Inadequate Emergency Access

The ARCF GRR FEIS/FEIR determined that construction of the levee improvements would result in a substantial increase in traffic on local roadways associated with truck haul trips during construction activities. The ARCF GRR FEIS/FEIR determined that traffic controls associated with truck haul trips during construction activities would cause or contribute to substantial temporary increases in traffic levels on several roadways, as traffic is detoured, slowed, or disrupted by lane closures. Traffic controls could cause delays during the morning and evening peak commute hours, which could disrupt emergency response times in the vicinity of the construction sites.

Without appropriate safeguards, implementation of the Proposed Action could result in inadequate emergency access. Mitigation measures identified in the ARCF GRR FEIS/FEIR are incorporated into the Proposed Action, including the following:

- The construction contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets.
- Emergency vehicle access would be made available at all times, through the required coordination with local emergency responders by the contractor, to inform them of the construction activities would be required by the contractor.

Implementation of mitigation measures identified in the ARCF GRR FEIS/FEIR and incorporated into the Proposed Action would ensure that impacts related to inadequate emergency access would be less than significant.

Conflict or Inconsistency with State CEQA Guidelines Section 15064.3

The new State CEQA Guidelines Section 15064.3(b) was adopted in December 2018 by the California Natural Resources Agency and took effect on July 1, 2020. These revisions to the State CEQA Guidelines criteria for determining the significance of transportation impacts shift the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses for projects that

are not roadway capacity projects. Vehicle miles traveled (VMT) is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

The City and County of Sacramento have not yet formally adopted updated transportation significance thresholds or its updated transportation impact analysis procedures. Because thresholds have not been finalized or adopted by the City or County. The Proposed Action would result in temporary construction-related VMT impacts. Also, this is not a land use project that will be occupied and generate new residence-based or employment-based trips; therefore, it will not result in a change in travel behavior and there will be no net increase in VMT; and any ongoing operations and maintenance trips will be below the "small projects" threshold of 110 trips per day. Therefore, the VMT impact of the Proposed Action is less-than-significant.

Conflict with a Program, Plan, or Ordinance: Decreased Performance or Safety of Alternative Modes of Transportation

Construction of the Proposed Action would have an impact on bicycle and pedestrian routes along the American River Parkway. As described in Chapter 2, Alternatives, internal haul routes would utilize multiple pathways atop and within the levees along both sides of the American River, which would interfere with commuter and recreational use of those facilities during construction. Construction activities would result in the temporary closure of bicycle/pedestrian pathways, requiring commuters and recreational users to seek alternative routes within the American River Parkway or in adjacent neighborhoods. While temporary, these impacts would have the potential to reduce safe access for bicycle and pedestrian users, which would conflict with the County of Sacramento's policy regarding pedestrian pathways along the American River Parkway. This impact would be less than significant with implementation of the proposed mitigation measures provided below.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measure found in Section 3.10 is incorporated into the Proposed Action:

> **Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan.** Before the start of project-related construction activities, USACE and the CVFPB would require the contractor to prepare a Traffic Control and Road Maintenance Plan. This plan would describe the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction's standard construction specifications. The items listed below would be included in the plan and as terms of the construction contracts:
>
> - The contractor would be required to prepare a Traffic Control and Road Maintenance Plan. A traffic control plan describes the methods of traffic control to be used during construction. All on-street construction traffic would be required to comply with the local jurisdiction's standard construction

specifications. The plan would reduce the effects of construction on the roadway system in the Project Area throughout the construction period.

- Construction contractors would follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. The conditions of the encroachment permit would be incorporated into the construction contract and would be enforced by the agency that issues the encroachment permit.
- Proposed lane closures would be coordinated with the appropriate jurisdiction and would be minimized to the extent possible during the morning and evening peak traffic periods.
- Standard construction specifications also typically limit lane closures during commuting hours. Lane closures would be kept as short as possible. If a road must be closed, detour routes and/or temporary roads would be made to accommodate traffic flows. Detour signs would be provided to direct traffic through detours. Advance notice signs of upcoming construction activities would be posted at least 1 week in advance so that motorists are able to avoid traveling through the study area during these times. Within the Parkway, detours would be used to allow for continued use by bicycle commuters.
- Safe pedestrian and bicyclist access would be maintained around the construction areas at all times. Construction areas would be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment would be located as far away as possible from areas where bicyclists and pedestrians are present.
- The construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.
- The construction contractor would assess damage to roadways used during construction and would repair all potholes, fractures, or other damages.
- The construction contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets.
- Emergency vehicle access would be made available at all times. The contractor would be required to coordinate with local emergency responders to inform them of the construction activities.

Summary

Implementation of the Proposed Action would generate temporary but substantial volumes of traffic on the local roadways and highways identified above in the Project

Area due to large volumes of the earthwork involved and the need for materials deliveries. Mitigation measures identified in the 2016 ARCF GRR FEIS/FEIR are incorporated into the Proposed Action and would reduce the magnitude of impacts on levels of service associated with the temporary increases in traffic. These incorporated measures combined with required adherence to local traffic laws and speed limits would help to reduce impacts associated with temporary increases in traffic related to Proposed Project but this temporary impact during construction would remain significant and unavoidable. Construction of the Proposed Action would not result in traffic impacts that would be new or more severe than those addressed in the ARCF GRR FEIS/FEIR and, therefore, those impacts are already adequately addressed in the ARCF GRR FEIS/FEIR.

Implementation of the proposed new mitigation measure below would reduce the impacts on the safety of alternative modes of transportation to a less-than-significant level.

Additional Mitigation Measure

Implementation of the following mitigation measure would reduce the impact on bicycle and pedestrian access to a less-than-significant level. To maintain safe usage of pedestrian and bicycle facilities that would intersect construction traffic, signal personnel would be in place to control construction vehicle, pedestrian, and bicycle traffic at those locations. Measures would be implemented which could include, but would not be limited to the following:

> **Mitigation Measure TR-2: Provide Bicycle and Pedestrian Access.** The contractor would prepare a Traffic Control and Road Maintenance Plan that would include the following provisions related to bicycle and pedestrian access:
>
> - Provide signs along affected pedestrian and bicycle pathways announcing scheduled closures and recommended detour routes.
> - Place signal personnel at intersections of construction vehicle pathways and active bicycle and pedestrian facilities.

3.9 Air Quality

3.9.1 Environmental Setting

3.9.1.1 Regulatory Setting

Section 3.11 (page 229) of the ARCF GRR FEIS/FEIR identified the Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) that apply to regulating air quality emissions. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the Proposed Action and described the status of compliance with those laws and regulations. Additional and updated applicable laws and regulations related to air quality are summarized below.

Federal

The CAA requires that the U.S. Environmental Protection Agency (EPA) set emissions standards for a range of pollution sources. Specifically, EPA and the National Highway Traffic Safety Administration (NHTSA) regulate emissions from on-road vehicles include automobiles and light-duty trucks. In 2012, EPA and NHSTA established the Corporate Average Fuel Economy (CAFE) standards for automobiles and light-duty trucks for model years 2014 and beyond (77 *Federal Register* [FR] 62624). Under the original iteration of the CAFE standards, fuel economy would be raised to the equivalent of 54.6 miles per gallon by 2025 (77 FR 62630).

However, on April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, the 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.[70]

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.

State

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." The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Friant Ranch development site is in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for multiple of the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), including ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

The Court ruled that the air quality analysis failed to adequately disclose the nature and magnitude of long-term air quality health impacts from emissions of criteria air pollutants and precursors "in sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises." The Court noted that the air quality analysis did not discuss the foreseeable

[70] National Highway Safety Transportation Administration. 2018. Safer Affordable Fuel Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021–2026. Last updated September 27, 2018. Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-proposed. Accessed December 4, 2019.

adverse health effects of project-generated emissions on Fresno County's likelihood of exceeding the NAAQS and CAAQS for criteria air pollutants, nor did it explain why it was not "scientifically possible" to determine such a connection.

The Court concluded that "because the EIR as written makes it impossible for the public to translate the bare numbers provided into adverse health impacts or to understand why such translation is not possible at this time," the EIR's discussion of air quality impacts was inadequate.

In California, the California Air Resources Board (CARB) is the agency responsible for coordination and oversight of State and local air pollution control programs and for implementing the CCAA and demonstrating compliance with the NAAQS. California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health and Safety Code Section 39606) for criteria air pollutants in consideration of public health, safety, and welfare. CARB has established CAAQS for criteria air pollutants of ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead, as well as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter. The standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

Local

Sacramento Metropolitan Air Quality Management District

Criteria Air Pollutants

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the primary agency responsible for planning to meet NAAQS and CAAQS in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the State Implementation Plan (SIP) for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the Federal Clean Air Act requirements to attain and maintain the NAAQS for ozone. The Sacramento Region has been designated as a "moderate" nonattainment area for the 2015 8-hour ozone standard.[71]

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria air pollutants and toxic air contaminants (TACs), and also make recommendations for conducting air quality analyses. Thresholds of significance adopted by SMAQMD are designed on a cumulative basis, considering regional growth and anticipated development, such that projects that do not exceed the adopted thresholds would not

[71] U.S. Environmental Protection Agency. 2019. *Greenbook 8-Hour Ozone (2015) Designated Area (State/Area/County Report)*. Last updated November 30, 2019. Available: https://www3.epa.gov/airquality/greenbook/jbcs.html#CA. Accessed December 4, 2019.

impede the region from achieving the CAAQS and ultimately the NAAQS. Further, because the ambient air quality standards are designed to protect public health, projects that do not exceed SMAQMD-adopted thresholds, or are reduced to below the thresholds with applied mitigation, would be considered to have a less-than-significant impact under CEQA, would not contribute to exceedance of a CAAQS or NAAQS, and would not result in adverse health effects.

After SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project may include but are not limited to the following:

- **Rule 201:** General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.
- **Rule 402:** Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- **Rule 403:** Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the Project Area.

In addition, if modeled construction-generated emissions for a project are not reduced to less than SMAQMD's mass emission threshold (85 pounds per day [lb/day]) after the standard construction mitigation is applied, then SMAQMD recommends charging an off-site construction mitigation fee. The fee must be paid before a grading permit can be issued. This fee is charged by SMAQMD to fund emission reduction programs. One example is SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures. Under SMAQMD Rule 201 ("General Permit Requirements"), construction equipment that possess the potential to emit TACs are required to obtain permits from SMAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including air toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

In April 2019, SMAQMD released the most recent version of the Mobile Source Air Toxics Protocol (MSAT Protocol). The MSAT Protocol provides guidance to local land use jurisdictions on assessing and disclosing potential cancer risk and $PM_{2.5}$ concentrations from major roadways and railways throughout Sacramento County. The MSAT Protocol replaces the *Recommended Protocol for the Evaluation of Sensitive Receptors Adjacent to Major Roadways*.[72]

Odors

Although offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 ("Nuisance") regulates odors.

Health Effects

In response to the Friant Ranch decision, discussed above, SMAQMD, in January 2020, prepared the draft Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro District, which provides screening health information for projects at or below regional CEQA thresholds of significance and for projects located within selected strategic areas of the region, also exceeding thresholds of significance emissions levels. Modeling guidance for large projects located outside strategic areas is also included. In conjunction with the draft guidance document, SMAQMD released screening tools for conducting health analyses at the project-level. However, because the guidance and associated tools are still in draft form, this analysis does not rely on them.

3.9.1.2 Existing Conditions

The 2016 ARCF GRR Final EIS/EIR Section 3.11 (pages 230 through 235) describes the regional and local setting in the vicinity of the Proposed Action area. There is no additional information specific to the Project Area.

[72] Sacramento Metropolitan Air Quality Management District. 2019 (April). *Mobile Source Air Toxics Protocol Guidance Document*. Available: http://www.airquality.org/LandUseTransportation/Documents/MSAT%20Protocol%20Guidance%20V1_2R.pdf. Accessed December 2019.

3.9.2 Methodology and Basis of Significance

3.9.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.11 (page 236) of the ARCF GRR FEIS/FEIR. Project-specific material quantities, haul routes, daily equipment use/types, and construction worker information have been added and are the basis for this analysis. The types of construction activities that would generate emissions of air pollutants include clearing of trees, vegetation, and loose materials; degrading and excavating the levee; installation of rock revetment; construction of a launchable-rock-filled trench; reconstruction of the levee; associated worker haul and commute trips; and implementation of mitigation sites. Refer to **Appendix E** for all inputs, assumptions, and modeling results. Specific methods are described herein. Where significant air quality impacts are identified, mitigation measures to reduce these impacts are specified.

Based on available construction sequencing assumptions, construction is anticipated to last from 2020 to 2022. Some initial vegetation clearing activities could begin as early as November 2020; however, major site preparation, earth movement, and levee improvement activities are anticipated to begin in May 2021 and last approximately 7 months. In addition, minor monitoring and maintenance activities involving monthly worker haul trips would occur in 2022, following completion of the primary levee work, lasting approximately 6 months. Construction could occur 7 days per week. Based on the construction sequencing anticipated, maximum construction activity would occur from May to July 2021 when rock hauling, on-site earth movement, and bank protection work would all occur simultaneously. The air quality analysis quantified a "worst case scenario" construction year (i.e., 2021) and daily emissions were compared to SMAQMD's thresholds of significance. A General Conformity Determination was also prepared, which quantified project emissions by calendar year and is included in **Appendix F**.

A variety of emissions modeling software and methods were used, consistent with SMAQMD guidance. The SMAQMD Roadway Construction Emissions Model Version 9.0 was used to obtain emission factors for heavy-duty construction equipment. Default off-road equipment emission factors, default horsepower, and load factors from the model were used, also consistent with defaults used in the California Emissions Estimator Model (CalEEMod). Modeling incorporated the project's commitment that heavy-duty construction equipment of 50 horsepower or greater would consist of, at a minimum, 90 percent EPA Tier 4 standards. No Tier 0 or uncontrolled equipment would be used as part of implementation without prior approval from USACE and a proposed mitigation plan to reduce these emissions to a minimum of Tier 1 levels. Fugitive dust emissions of PM_{10} were calculated from aggregate storage piles, dump truck travel on unpaved roads, hauling travel on paved roads, worker commute trips, and bulldozing and grading using emissions factors derived from EPA's AP-42 emissions factors using site specific information where available. Fugitive dust emissions of $PM_{2.5}$ were calculated using a 0.1 ratio of $PM_{2.5}$ to PM_{10} from EPA's AP-42 emissions factors.

Regarding hauling emissions, it was assumed that haul trucks to the construction site would consist of trucks with the capacity to haul 16 cubic yards (cy) of materials. It is expected that for several singular activities under the Proposed Action construction contractors would use haul trucks with the capacity to haul 32 cy of materials; however, 16 cy haul trucks were assumed for each activity to provide a more conservative emissions estimate.

In addition to estimating mass emissions from criteria air pollutants, air dispersion modeling was conducted to estimate health risks from project construction. Emissions from toxic air contaminants (i.e., diesel PM) was modeled using AERMOD and health risks were calculated using HARP 2. The health risk assessment (HRA) considered TAC emissions associated with the use of heavy-duty construction equipment at Site 2-1 and associated haul routes. In addition, emissions associated with vegetation removal activities (e.g., graders, excavators, haul trips) at the Glenn Hall Park mitigation site were also included. Note that vegetation removal activities that would occur at the Rio Americano West and Rio Americano East mitigation sites were not included in the HRA dispersion modeling because these activities are located well over 3 miles from Site 2-1 and the Glenn Hall Park site, where the primary TAC-generating activity would occur, and therefore, emissions associated with these mitigation sites would not combine with emissions at Site 2-1 or the Glenn Hall Park site to result increased risk levels. It was conservatively assumed that rock material could be hauled to the site from as far as 73 miles and lumbar from as far as 100 miles away. For the HRA, haul trucks with a capacity of 16 cy were assumed, representing the higher emissions scenario (i.e., more trucks, more emissions). In addition, note that if other, closer material sources were used, haul routes that could be used would result in shorter distances and associated emissions, and therefore, the scenario modeled represents the highest potential diesel PM emissions, and associated risk levels.

3.9.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.11 (page 238) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to air quality if it would:

- Conflict with, or obstruct implementation of, the applicable air quality plan;
- Violate any air quality standard or substantial contribution to existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area under NAAQS and CAAQS;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted. Specifically, Appendix G of the State CEQA Guidelines considers the direct, indirect, or cumulative effects of air pollutant emissions. In addition, Appendix G no longer includes the criterion of violation of any air quality standard or contribute substantially to an existing or projected air quality violation. As a result, this analysis also takes into consideration the following modified significance criterion:

- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

An air quality effect is considered significant if the Proposed Action's construction emissions would:

- Cause construction-generated criteria air pollutant or precursor emissions to exceed SMAQMD-recommended thresholds of 85 pounds per day (lb/day) for oxides of nitrogen (NO_X), zero, or if all feasible control measures are applied then 80 lb/day and 14.6 tons/year for PM_{10}, and zero, or if all feasible control measures are applied then 82 lb/day and 15 tons/year for $PM_{2.5}$;
- Cause construction-generated criteria air pollutant or precursor emissions to exceed the General Conformity *de minimis* thresholds of 25 tons/year for reactive organic gases (ROG) and NO_X, and 100 tons/year for CO, PM_{10}, and $PM_{2.5}$;
- Result in a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG and NO_X, 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$;
- Result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 parts per million or the 8-hour CAAQS of 9 parts per million;
- Expose sensitive receptors to a substantial incremental increase in TAC emission-related health risks that exceed 10 in 1 million for carcinogenic risk (e.g., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater; or
- Create objectionable odors affecting a substantial number of people.

Effects Not Evaluated Further

All impacts related to air pollution and the criteria listed above have been evaluated in this analysis.

3.9.3 Impact Analysis

3.9.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure due to seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would occur, which would require the operation of a notable number of heavy-duty construction equipment. Timing and duration of use would correlate with flood fighting needs, but it is foreseeable that these pollutants from this equipment would contribute to an exceedance of an applicable air quality standard, expose sensitive receptors to substantial pollutant concentrations, and create objectionable odors. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. Moreover, due to the unpredictable natural of emergency responses, the application of best management practices to control emissions would be infeasible. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.9.3.2 Proposed Action

Construction Emissions

The ARCF GRR FEIS/FEIR Section 3.11 (pages 240 through 245) analyzed the impacts on air quality in the Proposed Action area. Emission sources associated with the project site include the operation of off-road construction equipment, on-road vehicles traveling to and from the site during construction phasing, haul truck trips, retaining wall, utility usage, and fugitive dust associated with earth movement and soil-disturbance activities. The Proposed Action would generate emissions from a subset of these construction activities.

As discussed above in the *Methodology* section, construction emissions were evaluated with the assumption that haul trucks would have a 16 cy capacity. While it is expected that haul trucks with a larger capacity (e.g., 32 or 26 cy) would likely be used, this assumption of 16 cy haul trucks provides a more conservative emissions estimate. Total maximum daily emissions for 2021 were estimated for ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ and evaluated against SMAQMD's thresholds and presented in **Table 3.9-1**.

TABLE 3.9-1
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 1 CONSTRUCTION EMISSIONS

Maximum Construction Activity	Maximum Daily Emissions (lb/day)[1]				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
2021 (Site 2-1 + Mitigation Sites)	9	194	92	32	5
CEQA Threshold	N/A	85	N/A	0[2]	0[2]
Exceed Threshold?	N/A	Yes	N/A	Yes	Yes

NOTES:

1 Estimates represent a worst-case construction conditions which was assumed to be from May to July 2021. For annual emissions and a comparison to Federal *de minimis* levels, see Appendix F.

2 SMAQMD has a zero pound per day threshold of PM, when best available controls are not implemented but threshold with incorporated controls are 80 lb/day for PM_{10} and 82 lb/day for $PM_{2.5}$

SOURCE: Modeling conducted by Ascent Environmental in 2020.

As shown in Table 3.9-1, construction-related emissions under the Proposed Action, which included reductions associated with project commitments of higher tiered engines, would exceed SMAQMD's mass daily emission threshold for NO_X, PM_{10}, and $PM_{2.5}$. USACE would be required to pay an off-site mitigation fee for NO_X emissions to reduce the impact to a less-than-significant level.

As shown above, construction-generated exhaust emissions of NO_X would exceed SMAQMD's mass daily threshold of 85 lb/day. This impact would be significant; however, implementation of mitigation measures would reduce NO_X emissions to a less-than-significant level, not resulting in adverse health effects.

Fugitive Dust

Construction of the Proposed Action would result in short-term dust emissions from grading and earth moving activities at the project construction sites and the soil borrow sites. The amount of dust generated would be highly variable and is dependent on the size of the disturbed area at any given time, amount of activity, soil conditions, and meteorological conditions. Nearby land uses, especially those residences and schools located downwind of the project sites could be exposed to dust generated during construction activities, indirectly resulting in potential adverse health effects. This indirect effect would be significant, but implementation of mitigation measures would reduce dust emissions during construction to a less-than-significant level.

Toxic Air Contaminants

Construction of the Proposed Action would result in short-term diesel particulate emissions from on-site heavy-duty equipment and on-road haul trucks. Diesel PM, which is classified as a carcinogenic TAC by CARB, is the primary pollutant of concern with regard to indirect health risks to sensitive receptors. Nearby land uses, especially those residences and schools located downwind of the project sites could be exposed to diesel PM during construction activities, indirectly resulting in potential adverse health effects.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 70-year exposure period is often assumed. However, while cancer can result from exposure periods of less than 70 years, acute exposure periods (i.e., exposure periods of 2 to 3 years) to diesel exhaust 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. Construction activities that would require diesel-powered heavy-duty equipment associated with the Proposed Action are not expected to be used for more than 7 months. Further, construction activities would occur along the length of Site 2-1 and would not occur over a prolonged period in any one general location, minimizing exposure to diesel PM at any one receptor. Additionally, as required by 13 CCR Section 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Nonetheless, an HRA was prepared for the project and is appended to this Supplemental EA/EIR in **Appendix E**.

As detailed in Appendix E, construction of the Proposed Action would result in a maximum risk exposure of 6.06 in 1 million for carcinogenic risk. Because this value does not exceed 10 in 1 million, exposure of sensitive receptors to pollutants would not be considered substantial. Moreover, the Proposed Action would apply SMAQMD-recommended construction mitigation which would further reduce emissions of TACs. For these reasons, and the reasons listed above, this impact would be less than significant.

Odors

The Proposed Action would not result in any major source of odor, and the project would not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). Odors associated with diesel exhaust emissions from the use of construction equipment may be noticeable from time to time by nearby receptors. However, the odors would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. Further, as required by 13 CCR Section 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Therefore, this impact would be less than significant.

Operation

Long-term operational 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, 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. Any emissions that result from long-term operational activities would not exceed SMAQMD or *de minimis* thresholds and would be less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

The following mitigation measures were presented in the ARCF GRR FEIS/FEIR, but have been revised and updated to demonstrate consistency with the most current SMAQMD recommendations. The measure to install wind breaks by planting trees or installing fences at the upstream end of construction areas was not incorporated in the Proposed Action, because it is not a practical measure for a 5,500-foot construction area. Mitigation measures incorporated into the Proposed Action include:

> **Mitigation Measure AQ-1: Implement SMAQMD's Basic Construction Emissions Control Practices.** SMAQMD requires construction projects to implement basic construction emissions control practices to control fugitive dust and diesel exhaust emissions.[73] USACE would implement the following control measures during project construction:
>
> - Control fugitive dust as required by District Rule 403 and enforced by District staff.

[73] Sacramento Metropolitan Air Quality Management District. 2019. *Basic Construction Emissions Control Practices*. Available: http://www.airquality.org/LandUseTransportation/Documents/Ch3BasicEmissionControlPractices BMPSFinal7-2019.pdf. Accessed December 10, 2019.

- Water all exposed surfaces twice daily. Exposed surfaces include but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would travel along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track-out of mud or dirt from adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Complete all roadways, driveways, sidewalks, or parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- Minimize idling time, either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes (required by 13 CCR Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the site entrances.
- Maintain all construction equipment in proper working condition according to the manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Mitigation Measure AQ-2: Implement Enhanced Fugitive Dust Control Practices. Fugitive dust mitigation for the project would require the use of adequate measures during each construction activity and would include frequent application of water or application of soil additives, control of vehicle access, and vehicle speed restrictions. USACE would implement the dust mitigation measures listed below.

- Water exposed soil with adequate frequency for continued moist soil; however, do not overwater to the extent that sediment flows from the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible.
- Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the site.
- Treat site access to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.

- Post a publicly visible sign identifying the telephone number and person to contact at the lead agency regarding dust complaints. This person would respond and take corrective action within 48 hours. To ensure compliance, SMAQMD's phone number would also be visible.

Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls. Actual emissions of nonattainment and maintenance pollutants would be tracked monthly using tools acceptable to SMAQMD (e.g., construction mitigation calculator, SMAQMD's Equipment List). USACE shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment (50 horsepower or more) to be used 8 hours or more during project construction. The tracking data would be used to verify that all pollutants remain below the CEQA daily thresholds, General Conformity *de minimis* thresholds, or are fully mitigated and offset if emissions exceed either.

The initial report would include all of the following details:

- Information about the project information and the construction company.
- The equipment type, horsepower rating, engine model year, projected hours of use, and CARB equipment identification number for each piece of equipment in the plan.
- All owned, leased, and subcontracted equipment to be used.

Updated reports would be submitted monthly to demonstrate continued project compliance.

SMAQMD may conduct periodic site inspections to determine compliance. Nothing in this mitigation would supersede other air district, State, or Federal rules or regulations.

Mitigation Measure AQ-3 will sunset on January 1, 2028, when full implementation of the CARB In-Use Off-Road Regulation is expected.

Mitigation Measure AQ-4: Use Electric Construction Equipment. To the extent available and feasible, construction equipment would be powered by electricity, rather than diesel fuel, to reduce construction-related criteria air pollutants, TACs, and tailpipe GHG emissions associated with diesel fuel combustion. Electrification would result in a small amount of indirect carbon dioxide emissions because of the operation of the electric grid. Various types of construction equipment may feasibly be run on electricity.

Mitigation Measure AQ-5: Pay NO_X Mitigation Fee to SMAQMD. As of July 1, 2017, the mitigation fee rate is $30,000 per ton of emissions. The contractor would pay the appropriate SMAQMD-required NO_X mitigation fee to offset the project's NO_X emissions when they exceed SMAQMD's threshold of 85 lb/day. The NO_X mitigation fee would apply to all emissions from the project: on-road (on- and off-site), off-road, portable, stationary equipment, and vehicles.

Summary

Implementation of the mitigation measures contained in the ARCF GRR FEIS/EIR would reduce construction-generated NO_X emissions to a less-than-significant level that would not result in adverse health effects (as was shown in the HRA). In addition, with incorporation of dust control measures, PM (fugitive dust) emissions would be further reduced (i.e., by up to 75 percent) and would not exceed applicable SMAQMD thresholds or result in adverse health effects. The application of BMPs combined with engagement in SMAQMD's NO_X mitigation fee program would be sufficient to reduce emissions to zero, in accordance with the Clean Air Act for projects that exceed *de minimis* levels, and consequently below SMAQMD's recommended daily mass emissions threshold of 85 lb/day. Emissions of ROG, PM_{10}, and $PM_{2.5}$ would additionally be reduced through the application of the aforementioned mitigation measures. As discussed in the General Conformity Determination, included in Appendix F, the project would be in conformity with the Clean Air Act and would not cause or contribute to a new violation, nor increase the frequency or severity of existing violations of the NAAQS. Based on the conformity analysis, no exceedance of the *de minimis* thresholds in 2021 is expected. Construction-related air quality impacts would be less than significant with mitigation.

3.10 Greenhouse Gas Emissions and Energy Consumption

3.10.1 Environmental Setting

3.10.1.1 Regulatory Setting

Section 3.12 (page 254) of the ARCF GRR FEIS/FEIR identifies applicable Federal, State and local environmental laws and regulations that apply to regulating greenhouse gas emissions. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the Proposed Action and described the status of compliance with those laws and regulations. Additional applicable laws and regulations related to greenhouse gas (GHG) emissions and energy consumption are summarized below.

Federal

Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards

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 U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel

economy test results and vehicle sales. 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 below), the CAFE standards were revised for the first time in 30 years then later updated in 2012 and 2019.

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.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 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 CAFE standards, the Energy Independence and Security Act of 2007 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, 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.[74]

[74] National Highway Safety Transportation Administration. 2018. Safer Affordable Fuel Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026. Last updated September 27, 2018. Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-proposed. Accessed December 10, 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.

State

Statewide Greenhouse Gas Emissions Targets and the Climate Change Scoping Plan

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 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 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.[75]

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), 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."[76] 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 Climate Change Implementation Plan consistent with the carbon neutrality goal of Executive Order B-55-18.

The State has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below.

[75] United Nations. 2015. Paris Agreement. Available: https://unfccc.int/sites/default/files/english_paris_agreement.pdf. Accessed December 10, 2019. p. 3.

[76] California Air Resources Board. 2017 (November). California's 2017 Climate Change Scoping Plan. Available: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed December 10, 2019. pp. 1, 3, 5, 20, and 25–26.

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). The creation of the act occurred as a 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.

State of 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).[77] 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.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and 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.[78] 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.

[77] California Energy Commission and California Air Resources Board. 2003. Reducing California's Petroleum Dependence. Available: https://ww3.arb.ca.gov/fuels/carefinery/ab2076final.pdf. Accessed December 10, 2019.

[78] California Energy Commission and California Air Resources Board. 2003. Reducing California's Petroleum Dependence. Available: https://ww3.arb.ca.gov/fuels/carefinery/ab2076final.pdf. Accessed December 10, 2019.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

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 is the most recent IEPR, which was adopted March 16, 2018. The 2017 IEPR provides a summary of priority energy issues currently facing the State, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include 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; and issues facing California's nuclear power plants.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statutes of 2005) required 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 Federal, State, 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.

Executive Order S-06-06

Executive Order 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. The Executive Order 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.[79]

Local

SMAQMD provides guidance to lead agencies for conducting GHG analyses under CEQA and is currently in the process of updating their guidance and thresholds of significance for GHG emissions. In March 2020, SMAQMD released the draft *Greenhouse Gas Thresholds for Sacramento County* guidance document. However, because the guidance is still in draft form, this analysis does not rely on it. Nonetheless, methods used in this analysis are still consistent with SMAQMD guidance.

3.10.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.12 (pages 255 through 260) describes the regional and local setting in the vicinity of the Proposed Action area. There is no additional information specific to the Project Area.

3.10.2 Methodology and Basis of Significance

3.10.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.12 (pages 261 through 262) of the ARCF GRR FEIS/FEIR. That analysis focused on evaluating GHG impacts from construction activities because operation and maintenance activities are part of the existing environmental baseline and thus would not create a substantial source of new emissions. Where significant climate change impacts are identified, mitigation measures to reduce these impacts are specified.

[79] California Energy Commission. 2019. Total System Electric Generation. Available: https://ww2.energy.ca.gov/almanac/electricity_data/total_system_power.html. Accessed December 10, 2019.

GHG emissions from project construction would result from fuel usage by off-road equipment, on-road vehicles, electricity consumption by office trailers, and delivery of materials. The project's potential GHG impact was analyzed using a conservative construction scenario to estimate the maximum construction emissions generated. The emissions associated with material borrow activities were also quantified.

A variety of methods and emissions modeling software were used to quantify criteria air pollutants, described in Section 3.9, *Air Quality*. The emission factors and models described there were also used to quantify GHG emissions. GHG emissions were summed over the entire duration of all anticipated activity, including the use of heavy-duty equipment, haul trucks, and worker commute trips. All inputs and assumptions are included in Appendix E.

The ARCF GRR FEIS/FEIR did not evaluate potential energy impacts. The 2018 revisions to the State CEQA Guidelines amended Appendix G to include potentially significant impacts related to energy consumption. Total gallons of diesel and gasoline were estimated for the projects using assumptions derived from SMAQMD's Roadway Construction Model Version 9.0.

3.10.2.2 Basis of Significance

This analysis uses a basis of significance described in in Section 3.12 (pages 262 through 263) of the ARCF GRR FEIS/FEIR, as restated below. The ARCF GRR FEIS/FEIR did not evaluate potential energy impacts, and significance thresholds were added for energy consumption.

The Proposed Action would result in a significant effect related to GHG emissions and energy consumption if it would:

- Conflict with an applicable plan adopted for the purpose of reducing GHG emissions.

SMAQMD has local jurisdiction over the Project Area. On October 23, 2014, the SMAQMD adopted GHG thresholds, which were informed by the California Air Pollution Control Officers Association, "CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act" Document.[80] The SMAQMD-adopted thresholds are:

- *Construction phase of projects:* 1,100 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year.
- *Operational phase of land development projects:* 1,100 $MTCO_2e$ per year.
- *Stationary-source projects:* 10,000 direct $MTCO_2e$ per year.

[80] California Air Pollution Control Officers Association. 2008. CEQA and Climate Change. Available: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf. Accessed December 10, 2019.

Based on the CEQA guidelines established by each air district, the districts recommend quantifying and disclosing GHG emissions from construction activities; making a determination regarding the significance of these GHG emissions based on a threshold determined by the lead agency; and incorporating best management practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines have been adopted that identify criteria for evaluating potentially significant energy impacts. As a result, this analysis also takes into consideration the following additional or modified significance criteria:

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

Effects Not Evaluated Further

The Proposed Action would involve short-term construction activities to improve levee structures along the American River; once construction activities are complete (approximately one year), emissions-generating activities would cease. Operational activities may require maintenance crews visiting the site for short periods of time to conduct light hand work. However, these activities occur now, and therefore, the Proposed Action would not result in any long-term increase in GHG emissions. This issue is not discussed further.

3.10.3 Impact Analysis

3.10.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would occur, which would require the operation of a notable number of heavy-duty construction equipment that would consume diesel fuel and emit GHGs. Timing and duration of use would correlate with flood fighting needs, but it is foreseeable that these pollutants from this equipment could generate a notable amount of GHG emissions and fuel consumption. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.10.3.2 Proposed Action

Greenhouse Gas Emissions

The ARCF GRR FEIS/FEIR Section 3.12 (pages 261 through 266) analyzed the impacts on GHG emissions and energy consumption in the Proposed Action area. Construction emissions associated with site-related activities and off-site commute and haul truck trips were estimated based on the emission rates and assumptions described in Section 3.9, *Air Quality*. Emission sources associated with site-related activities include the off-road construction equipment operating at Proposed Action sites, on-road vehicles, and haul trucks traveling to and from the Proposed Action sites. As summarized in Section 3.9, *Air Quality*, GHG emissions and fuel consumption were estimated using the assumption that haul trucks with a capacity to move 16 cy would be utilized for all construction activities to produce a more conservative emissions estimate. Total annual GHG emissions (expressed in metric tons of carbon dioxide equivalent per year [$MTCO_2e$/year]) are summarized by year and are shown in **Table 3.10-1**.

TABLE 3.10-1
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 1 CONSTRUCTION GREENHOUSE GAS EMISSIONS (SCENARIO 1)

Construction Year	Total GHG Emissions ($MTCO_2e$/year)
2020	382
2021	9,025
2022	1
CEQA Threshold	1,100
Exceed Threshold?	Yes

NOTE:
$MTCO_2e$/year = metric tons of carbon dioxide per year
SOURCE: Modeling performed by Ascent Environmental in 2020.

As shown in Table 3.10-1, construction-related GHG emissions would exceed SMAQMD's mass emission construction threshold of 1,100 $MTCO_2e$/year in 2021. This would constitute a potentially significant climate change impact. Notably, however, the Proposed Action would increase the likelihood that the flood management system could accommodate future flood events as a result of climate change. Consequently, 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 climate change. Nevertheless, because the Proposed Action would exceed the 1,100 $MTCO_2e$/year threshold established by SMAQMD, climate change impacts would be significant; however, this impact could be reduced to a less-than-significant level with mitigation that would require the purchase of GHG offsets, effectively reducing emission to the SMAQMD threshold of significance.

Energy

Construction of the Proposed Action would result in an increase in fuel consumption as compared to baseline conditions. Gasoline would be consumed from worker commute trips to and from the construction sites. Diesel fuel would be required to operate heavy-duty diesel-powered construction equipment and haul trucks. **Table 3.10-2** displays the estimated gallons of diesel fuel and gasoline consumption per year from implementation of the Proposed Action under each scenario.

TABLE 3.10-2
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 1 CONSTRUCTION FUEL CONSUMPTION (SCENARIO 1)

Fuel Type	Total Fuel Consumption (gallons)
Gasoline	6,035
Diesel	1,212,494

SOURCE: Modeling performed by Ascent Environmental in 2020.

As shown in Table 3.10-2, construction-related gasoline consumption would be approximately 6035 gallons and diesel consumption would be approximately 1,212,494 gallons. This increase in fuel consumption would be met through existing fueling infrastructure and would not require the construction of new infrastructure that would result in an adverse environmental effect. Additionally, the use of fuel would not be considered wasteful, inefficient, or unnecessary as the Proposed Action would occur as a method of improving the resiliency of the Sacramento region to flood impacts, which would be considered a necessary action for the protection of residents in the Sacramento region.

The Proposed Action would also not prevent the implementation of goals, policies, or actions contained in a plan to increase renewable energy usage or improve energy efficiency. The Proposed Action constitutes a construction project and would not generate operational electricity demand. Therefore, energy-related impacts would be less than significant.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR on-site mitigation measures are incorporated into the Proposed Action during construction. The measure to perform on-site material hauling using trucks equipped with on-road engines (if determined to result in lower levels of emissions than the off-road engines) was not incorporated, because it is not feasible for the Proposed Action.

Mitigation Measure GHG-1: Avoid, Minimize, and Compensate for Greenhouse Gas Emissions Effects. USACE would implement the following measures to avoid, minimize, and compensate for the project's GHG emissions effects:

- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.
- Recycle at least 75 percent of construction waste and demolition debris.
- Purchase at least 20 percent of the materials and imported soil from sources within 100 miles of the project site.
- Minimize idling time, either by shutting equipment off when not in use or by reducing the time of idling to no more than 3 minutes (a 5-minute limit is required by the State airborne toxics control measure [13 CCR Sections 2449(d)(3) and 2485]). Clear signage identifying this requirement for workers would be posted at the entrances to the site.
- Maintain all construction equipment in proper working condition according to the manufacturer's specifications. The equipment would be checked by a certified mechanic and determined to be running in proper condition before it is operated.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Use a CARB-approved low-carbon fuel for construction equipment. (NO_X emissions from the use of low-carbon fuel would be reviewed and increases mitigated.)
- Purchase a GHG offset for program-wide GHG emissions (direct plus indirect emissions from on-road haul trucks plus commute vehicles) exceeding SMAQMD's or CEQ's significance thresholds applicable at the time of construction. Carbon offset credits would be purchased from programs that have been approved by SMAQMD.

Summary

Implementation of the on-site mitigation measures listed above would improve the fuel and material efficiency of construction equipment, which would generate fewer emissions of GHGs. Once all on-site mitigation has been applied to the Proposed Action, carbon offsets could be purchased to reduce the remaining $MTCO_2e$ to levels at or below SMAQMD's 1,100 $MTCO_2e$ significance threshold. Thus, application of the mitigation measures identified above would reduce impacts to a less-than-significant level.

3.11 Noise

3.11.1 Environmental Setting

3.11.1.1 Regulatory Setting

Section 3.13 (page 266) of the ARCF GRR FEIS/FEIR identifies local noise ordinances that apply to regulating noise in the in the Project Area of the Proposed Action. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. There have been no changes to the applicable listed regulations related to Noise and Vibration. Specific regulations and guidelines used in this analysis are presented below.

Federal

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in **Table 3.11-1**, below.

TABLE 3.11-1
GROUND-BORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Ground-borne Impact Levels (VdB re 1 micro-inch/second)			
Land Use Category	**Frequent Events[a]**	**Occasional Events[b]**	**Infrequent Events[c]**
Category 1: Buildings where vibration would interfere with interior operations.	65 [d]	65 [d]	65 [d]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

NOTES:
VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

[a] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[b] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[c] "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

SOURCE: Federal Transit Administration. 2018 (September). *Transit Noise and Vibration Impact Assessment.* Washington, D.C. 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. Accessed December 4, 2019.

State

California Department of Transportation

In 2013, California Department of Transportation (Caltrans) published the *Transportation and Construction Vibration Manual*.[81] The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. **Table 3.11-2** presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

TABLE 3.11-2
CALIFORNIA DEPARTMENT OF TRANSPORTATION RECOMMENDATIONS REGARDING LEVELS OF VIBRATION EXPOSURE

Effect on Buildings	PPV (in/sec)
Architectural damage and possible minor structural damage	0.4-0.6
Risk of architectural damage to normal dwelling houses	0.2
Virtually no risk of architectural damage to normal buildings	0.1
Recommended upper limit of vibration to which ruins and ancient monuments should be subjected	0.08
Vibration unlikely to cause damage of any type	0.006-0.019

NOTES:
in/sec = inches per second; PPV = peak particle velocity
SOURCE: California Department of Transportation. 2013 (September). *Transportation and Construction Vibration Guidance Manual.* Division of Environmental Analysis. Sacramento, CA.

3.11.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.13 (page 272) describes the regional and local setting in the vicinity of the ARCF 2016 Project, American River Contract 1 Project Area. The following provides additional information specific to the Project Area.

Sensitive Receptors

Sensitive receptors along the American River include residents along the levee system and along the proposed haul routes. Refer to Figures 2-15 through 2-18 for proposed haul routes and their proximity to existing land uses. Residential areas back up to the levees and in most cases, there is very little space between the levee toe and the back fence of private properties. Because the levee is higher than the houses, noise on the levees could travel into the backyards and houses. In addition, recreationists using the American River Parkway would be considered sensitive receptors, as would the local wildlife in the Parkway.

Sources of Noise

The majority of the study area, including both the American River North and South basins, is located in urban and residential areas, where the primary sources of noise are traffic, trains, common urban uses, and limited air traffic. Boating operation is common

[81] California Department of Transportation, 2013 (September). *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Noise, Division of Environmental Analysis. Sacramento, CA.

along the American River. Major highways and roadways which generate noise near the American River include Business 80, U.S. 50, Watt Avenue, H Street (the H Street Bridge), Fair Oaks Boulevard, Howe Avenue, and the Arden/Garden Connector. Arterial roadways and stationary sources have a localized influence on the noise environment.

Based on available existing traffic data for Interstate 80 (I-80) and U.S. 50, existing noise levels at nearby major intersections (e.g., U.S. 50/State Route 16 and I-80/Howe Avenue), range from approximately 82 A-weighted decibels (dBA) to 84 dBA community noise equivalent level, respectively (see Appendix D for modeling).

3.11.2 Methodology and Basis of Significance

3.11.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.13.2 (page 274) of the ARCF GRR FEIS/FEIR. Construction activities (including construction equipment used for long-term maintenance) are assumed to be the predominant source of noise and vibration associated with the project. Construction noise impacts were assessed using an analysis method recommended by the U.S. Department of Transportation for construction of large public works infrastructure projects.[82] Based on anticipated construction equipment types and methods of operation, construction noise levels for various elements of the construction process were calculated. These predicted levels were compared to significance criteria to determine whether significant impacts are predicted to occur. Where significant noise impacts are identified, mitigation measures to reduce noise impacts are specified.

Project-generated construction noise and vibration levels were determined based on methodologies, reference noise levels, and usage factors from FTA's *Transit Noise and Vibration Impact Assessment* methodology.[83] Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics. The magnitude of construction noise and vibration impacts at sensitive land uses depends on the type of construction activity, the noise and vibration levels generated by various pieces of construction equipment, the distance between the activity, and sensitive land uses. For this analysis, noise levels at various distances from the construction equipment were estimated using calculation procedures recommended by FTA.[84] The calculations used for this analysis include distance attenuation (6 decibels per doubling of distance) and attenuation from ground absorption for both hard ground and soft ground.

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82 Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. 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. Accessed December 4, 2019.

83 Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. 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. Accessed December 4, 2019.

84 Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. 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. Accessed December 4, 2019.

Regarding temporary increases in noise from haul trucks, noise levels were estimated based on anticipated maximum daily truck activity and traffic noise modeling using methods consistent with the Federal Highway Administration's (FHWA) Traffic Noise Model.

3.11.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.13.2 (page 274) of the ARCF GRR FEIS/FEIR, as restated below.

Both the City and County of Sacramento noise ordinances state that a standard of 55 dBA is applied from 7:00 a.m. to 10:00 p.m., and a standard of 50 dBA is applied from 10:00 p.m. to 7:00 a.m. for residential and agricultural uses.

These noise levels are then adjusted according to the cumulative duration of the intrusive sound. For example, if the cumulative period is 5 minutes per hour, then the standard is adjusted by 10 dBA to 65 dBA during daytime hours and 60 dBA during nighttime hours. If the cumulative period is 30 minutes per hour, no adjustments are made and the standard is 55 dBA during the daytime and 50 dBA during the nighttime, functionally similar to the average hourly noise level, or L_{eq}. The noise level that must not be exceeded for any time per hour is 75 dBA during the day and 70 dBA during the night, functionally similar to a maximum noise level or L_{max}.

The Sacramento County noise ordinance further states that construction noise is exempt from 6:00 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays (Chapter 6.68 Noise Control, County of Sacramento Code). The City of Sacramento exempts construction noise from 7:00 a.m. to 6:00 p.m. Monday through Saturday and from 9:00 a.m. to 6:00 p.m. on Sundays (8.68.080 Exemptions, Noise Control Standards, City of Sacramento Municipal Code). Thus, construction noise impacts were evaluated using the City and County noise codes, where applicable.

To evaluate potential structural damage from construction activities, Caltrans guidance was used. To evaluate disturbance to sensitive receptors from construction and hauling activities, FTA guidance was used. Thus, based on the aforementioned applicable regulations, the Proposed Action would result in a significant effect related to noise if it would result in:

- A substantial temporary (i.e., construction) 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. Due to the nature of project construction that would vary throughout the day depending on individual construction activities, applicable thresholds include construction noise levels above 55 dBA L_{eq}, or construction activity that generates excessive noise levels during sensitive times of the day; or

- Exposure of sensitive receptors or structures to groundborne vibration, that exceed the following:
  - 72 vibration decibels (VdB) for hauling activities,
  - 80 VdB for heavy-duty equipment, or
  - 0.2 peak particle velocity (PPV) for structural damage from any activity.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines that became effective in December 2018 were intended to reflect recent changes to the CEQA statutes and court decisions. To the extent that the topics or questions in Appendix G are not reflected in the ARCF GRR FEIS/FEIR significance criteria, these topics and questions have been taken into consideration in the impact analysis below, even though the determination of significance relies on City and County of Sacramento thresholds. Specifically, Appendix G no longer includes the criterion of the effect of permanent, temporary, or periodic increases in ambient noise levels in the project vicinity above levels existing without the project, but rather defers to local noise ordinances and standards as the relevant criteria.

Effects Not Evaluated Further

The Proposed Action would not result in any long-term sources of vibration such as railways or transit centers, and therefore, operational vibration impacts are not discussed further. In addition, no new stationary noise sources are proposed. Regarding permanent increases in traffic noise, once construction is complete, operational activities would be limited to small maintenance crews traveling to and from the site periodically to conduct inspections and limited work on-site. These activities are similar to current operations and would not result in traffic increases that could generate perceptible increases in noise. Issues related to long-term operational vibration, stationary noise sources, and traffic noise increases are not evaluated further.

The Proposed Action does not include any new land use development (e.g., residences, commercial) where people work or live, and therefore, would not expose people to aircraft or airport-related noise. Noise from aircraft and airports is not discussed further.

3.11.3 Impact Analysis

3.11.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the Proposed Action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns. These events would generate noise; however, noise levels would depend on the degree of severity of these events. For instance, catastrophic flood event could generate high volumes of noise as compared to some spillage from levee overtopping.

Under the No Action/No Project Alternative, there would be no construction-related effects on the acoustic environment, including the generation of groundborne vibration. The noise levels in the study area would remain consistent with the existing ambient noise levels present under current conditions. It is highly likely that if the project is not constructed, a large flood event could result in levee failure. The amount of noise that would be generated to repair the damaged levee and cleanup of the flooded lands could exceed noise ordinances and expose sensitive receptors near the rivers to excessive noise levels and groundborne vibration from the placement of riprap to repair levees. This effect could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore, a precise significance determination is not possible at this time.

3.11.3.2 Proposed Action

Construction Noise

The project would generate construction noise from heavy-duty equipment operating at each work location and from the use of heavy-duty trucks to haul material to and from the work sites. Although these activities are all associated with proposed construction activities, they are somewhat distinct and may affect different receptors, thus, are described separately below.

Heavy-Duty Construction Equipment

The ARCF GRR FEIS/FEIR (pages 275 through 281) characterized construction noise levels from various activities that would occur during project construction, including stripping, levee degrading, soil placement, riprap installation, and roadway construction, as shown in Table 50 of the GRR Final EIS/EIR. Based on the modeling conducted for that analysis, noise levels associated with riprap installation (i.e., 88 dBA L_{eq}) would represent the loudest anticipated noise levels that could occur during erosion protection activities at Site 2-1 for the Proposed Action. Based on modeled noise levels for riprap installation, ground absorption, and standard attenuation rates (6 dBA reduction per doubling of distance), **Table 3.11-3** below shows anticipated noise levels at various distances from heavy-duty equipment use at any of the three work sites.

Sensitive receptors include nearby existing residential neighborhoods, various community churches, and CSUS. The closest sensitive receptors to construction activity are approximately 150 feet from the outer boundary of construction areas. Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA L_{eq}) would be exceeded within approximately 1,000 feet of existing sensitive land uses.

TABLE 3.11-3
NOISE LEVELS DURING CONSTRUCTION OF EROSION PROTECTION

Distance Between Source and Receiver (feet)	Calculated 1-Hour L_{eq} Sound Level (dBA)
50	88
100	80
200	72
300	68
400	65
500	62
1,000	54
1,500	50
2,000	46
3,000	42

NOTE:
dBA = A-weighted decibels; L_{eq} = hourly average noise level

SOURCE: Modeled by Ascent Environmental Inc. 2020

Haul Trucks

In addition to noise generated from the use of heavy-duty equipment at the work site, riprap material (i.e., rocks) would be imported and excavated material would be exported on a daily basis, at varying quantities from the different work sites. Based on aerial imagery of the sites and the anticipated haul routes, receptors are located as close as 50 feet from haul routes (i.e., from directional travel lane).

To model noise levels from hauling activities, maximum daily and hourly hauling activity was calculated based on anticipated material quantities needed, as provided in Chapter 2, *Alternatives*, and in Appendix D.

Based on the anticipated construction schedule and sequencing of activities, maximum haul truck trips per day would occur from May to July. Specifically, Site 2-1 would require 93 daily one-way truck trips (186 total daily trips) for quarry hauling and 30 daily one-way truck trips (60 total daily trips) for exporting material. Based on these quantities and conservatively assuming 16 cubic yard trucks, there would be a total of 246 daily truck trips, or 25 trucks per hour of the workday. Based on these quantities and assuming all trucks could be traveling on the same route, hauling activities could result in noise levels of approximately 57 dBA L_{eq} at receptors located 100 feet from the centerline of the haul routes. Predicted noise levels would not attenuate to below 55 dBA L_{eq} until the receptors are beyond 135 feet from the centerline of the haul route. Because receptors are located as close as 50 feet from haul routes (i.e., from directional travel lane), receptors along proposed haul routes would be exposed to exterior noise levels that exceed applicable thresholds of 55 dBA L_{eq}.

As discussed above, heavy-duty construction equipment at all work sites, as well as peak-hourly haul truck activities would exceed City and County of Sacramento daytime noise standards of 55 dBA L_{eq}. Under the Proposed Action, there would be significant short-term impacts associated with temporary construction noise and haul truck activities; however, this impact could be reduced to a less-than-significant level with mitigation.

Vibration Generated during Construction

Regarding construction-related vibration, pile driving and blasting activities are of primary concern for both structural damage and disturbance to sensitive receptors. Consistent with the analysis in the ARCF GRR FEIS/FEIR (pages 277 through 288) pile driving and blasting activity is not proposed, which are typically the types of activities that could result in vibration impacts. Thus, the analysis in the ARCF GRR FEIS/FEIR assumed that the highest levels of vibration could come from a vibratory compactor/ roller, a likely piece of equipment that could generate groundborne vibration. In accordance with FTA guidance for determining impacts from vibration to sensitive receptors (i.e., vibration levels that exceed 0.10 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 would only be a potential issue if receptors or structures were located within 40 feet of construction activity. Based on aerial imagery and anticipated location of work sites, receptors are generally located beyond 40 feet. However, because the exact footprints of staging areas and work areas are not delineated on the project plan, the potential remains for vibration impacts, depending on the location of construction activity in proximity to existing structures and receptors.

In addition to vibration from heavy-duty equipment, vibration impacts could also result from daily haul truck activity occurring in close proximity to existing sensitive land uses. The 2016 ARCF GRR Final EIS/EIR did not evaluate vibration from haul trucks, so this analysis focusses on impacts from hauling activities.

Project-related construction vibration levels were calculated using FTA guidelines based on the 50-foot distance of the nearest sensitive receptor to haul routes. 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 PPV at a distance of 25 feet[85]). Assuming a maximum vibration level of 86 VdB at 25 feet, with an attenuation rate of 9 VdB per doubling of distance, the construction vibration level at the closest sensitive uses would be approximately 77 VdB (0.028 inch per second PPV). This vibration level is below the FTA threshold of 0.2 inch per second PPV for structural damage of normal dwelling houses. However, this vibration level is above the FTA threshold of 72 VdB for human annoyance and would be perceptible.

As discussed above, the use of heavy-duty construction equipment could result in vibration impacts depending on the final location of staging areas and work areas, as well

[85] Federal Transit Administration, 2018 (September). *Transit Noise and Vibration Impact Assessment*. Washington, D.C. 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. Accessed December 4, 2019.

as depending on proximity to existing vibration-sensitive land uses. Further, due to the frequency (i.e., over 200 per day) of daily haul trucks, hauling activities could exceed FTA recommended guidelines for frequent events of 72 VdB at some receptors. Under the Proposed Action, there would be significant impacts associated with temporary construction-related vibration from heavy-duty equipment use and haul truck activities; however, this impact could be reduced to a less-than-significant level with mitigation incorporated.

2016 ARCF GRR Final EIS/EIR Mitigation Measures

During construction, noise-reducing measures would be employed to ensure that construction noise would comply with local ordinances. Prior to the start of construction, a noise control plan would be prepared that would identify feasible measures to reduce construction noise, when necessary. The following 2016 ARCF GRR FEIS/FEIR mitigation measures (pages 281 to 282) are incorporated into the Proposed Action:

> **Mitigation Measure NOISE-1: Implement Noise Reduction Practices.** The following noise reduction practices would reduce noise generated by construction activities and would apply to construction activities within 500 feet of sensitive receptors, including but not limited to residences.
>
> - Coordinate with local residents, comply with noise ordinances, and implement other BMPs.
> - Provide written notice to residents within 1,000 feet of the construction zone, advising them of the estimated construction schedule. This written notice would be provided within one week to one month of the start of construction at that location.
> - Display notices with such information as contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences.
> - Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.), when feasible.
> - Require that construction equipment be equipped with factory-installed muffling devices, and that all equipment be operated and maintained in good working order to minimize noise generation.
> - Locate stationary noise-generating equipment as far as practicable from sensitive receptors.
> - Limit unnecessary engine idling (i.e., longer than 5 minutes) as required by State air quality regulations.
> - Employ equipment that is specifically designed for low noise emission levels, when feasible.

- Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise-sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, prohibit the use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations.
- Locate construction staging areas as far as practicable from sensitive receptors.
- Design haul routes to avoid sensitive receptors, to the extent practical.
- If there are any occupied buildings with plaster or wallboard construction within 40 feet of construction equipment, prepare a vibration control plan prior to construction.

Summary

Mitigation Measure NOISE-1, adopted in the ARCF GRR FEIS/FEIR, would be incorporated into the Proposed Action and would reduce construction noise and vibration by ensuring that proper equipment is used, requiring noticing and sound barriers to nearby receptors, and requiring alternative equipment types or alternative construction methods, to reduce noise to the extent possible. The mitigation limits construction activity to between 7:00 a.m. and 7:00 p.m.; however, the Proposed Action would limit construction activity to City of Sacramento daytime construction hours, which are from 7:00 a.m. to 6:00 p.m. on Mondays through Saturday and 9:00 a.m. to 6:00 p.m. on Sundays (see Section 2.1.2.4).

Additional Mitigation Measure

In addition to the mitigation measure incorporated from the ARCF GRR FEIS/FEIR (Mitigation Measure NOISE-1), the additional Mitigation Measure NOISE-2 would ensure that a vibration control plan and site-specific measures would be implemented to ensure that applicable thresholds would not be exceeded. Therefore, these mitigation measures would reduce the impact to a less-than-significant level.

Mitigation Measure NOISE-2: Implement Vibration Control Measures. USACE and the CVFPB would implement the following vibration control measures to reduce construction-related vibration effects.

- To the extent feasible and practicable, the primary construction contractors would employ vibration-reducing construction practices so that vibration from construction would comply with applicable noise-level rules and regulations, including the construction vibration standards of the City or County of

Sacramento, depending on the jurisdictional location of the affected receptor(s). Project construction specifications would require the contractor to limit vibrations to less than 0.2 inch per second PPV, and less than 72 VdB for frequent events or 80 VdB for infrequent events within 50 feet at any building. If construction or truck hauling activity would occur within 50 feet of any occupied building, the contractor would prepare a vibration control plan prior to construction. The plan would include measures to limit vibration, including but not limited to the following:

- Avoid vibratory rollers and packers near sensitive areas.
- Route heavily loaded trucks away from residential streets, if possible. If no alternatives are available, select the streets with the fewest homes. Depending on the specific truck type that would be used, the contractor could demonstrate with substantial evidence, to the City of Sacramento, that trucks would not exceed applicable thresholds mentioned above.
- Conduct a voluntary pre- and post-construction survey to assess potential architectural damage from levee construction vibration at each residence within 75 feet of construction. The survey would include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation would be reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures would be performed to identify (and repair, if necessary) damage, if any, from construction vibration. Any damage would be documented with photographs and video. This documentation would be reviewed with the individual property owners.
- Place vibration monitoring equipment at the property line adjacent to large equipment and, with owner approval, at the back of the residential structures adjacent to the large equipment. Record measurements daily.

3.12 Recreation

3.12.1 Environmental Setting

3.12.1.1 Regulatory Setting

Section 3.14 (page 282) of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the proposed action and Chapter 5 of the ARCF GRR FEIS/FEIR described in detail the status of compliance with those laws and regulations. There has been no change to the applicable listed regulations related to recreation as listed in the ARCF GRR FEIS/FEIR.

3.12.1.2 Existing Conditions

The ARCF GRR FEIS/FEIR Section 3.14 (pages 282 through 287) describes the regional and local setting in the vicinity of the Project Area, including descriptions of the recreational facilities, uses, and access to the Project Area. These include descriptions of

the following: the Jedediah Smith Recreation Trail, Paradise Beach, and Guy West Bridge. In addition to these previously described recreational resources, the City of Sacramento's Glenn Hall Park and Glenn Hall Pool facilities are located on the landside of the levee near Paradise Beach at Site 2-1 in the River Park neighborhood. The ingress and egress road for the Glenn Hall Park and Pool facilities parking area would be where construction equipment and haul trucks access the staging area on the waterside of the levee at Paradise Beach. These recreational facilities provide access to swimming, baseball, soccer, and other fitness related park space and facilities.

3.12.2 Methodology and Basis of Significance

3.12.2.1 Methodology

This analysis uses the same methodology as described in Section 3.14 (page 287) of the ARCF GRR FEIS/FEIR to analyze impacts of the Proposed Action on recreational opportunities within the Project Area based on temporary and permanent changes to recreational resources.

3.12.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.14 (page 287) of the ARCF GRR FEIS/FEIR, as restated below. No changes have been made to the State CEQA Guidelines' basis of significance since publication of the ARCF GRR FEIS/FEIR.

The Proposed Action would result in a significant effect related to recreation if it would:

- Eliminate or substantially restrict or reduce the availability, access, or quality of existing recreational sites or opportunities in the Project Area;
- Cause substantial long-term disruption in the use of an existing recreation facility or activity;
- Result in inconsistencies or non-compliance with regional planning documents; or
- Result in inconsistencies with the Rivers and Harbors Act or the Wild and Scenic Rivers Act.

3.12.3 Impact Analysis

3.12.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the proposed action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, flooding and inundation of existing recreational facilities (e.g., Paradise Beach), trails, bike paths,

fishing access, and other recreation areas (e.g., Glenn Hall Park) that would render the American River Parkway unusable until cleanup and restoration activities could take place. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable. Therefore, a precise significance determination cannot be made at this time.

3.12.3.2 Proposed Action

The ARCF GRR FEIS/FEIR Section 3.14 (pages 282 through 293) analyzed impacts on recreation within the Project Area. The Proposed Action would result in temporary closures of parts of the Jedediah Smith Recreation Trail at the Rio Americano West Mitigation Site and Rio Americano East Mitigation Site during construction activities. Haul trucks and other construction equipment would use portions of the recreational trails to move materials, reducing accessibility to recreationists. At Site 2-1, the entire length of the upper levee crown trail and maintenance road, and informal waterside paths would be closed entirely during the construction period, while the lower landside bicycle recreational trail from the H Street Bridge south to the exit onto State University Drive at the Hornet Bookstore could be closed during most of the active construction season.

All the open available recreational trails would have some locations where construction equipment would cross from landside staging areas or haul in materials from off-site to the staging areas. At these locations, flagmen would be stationed to provide traffic control of construction equipment and recreationists to prevent accidents. Construction staging areas would also restrict the use of and access to recreational areas, such as the staging area at Paradise Beach, reducing the quality of recreational experiences in that area. Access to the staging area for Site 2-1 would also affect access to residents using the parking lot entrance to the Glenn Hall Pool and Glenn Hall Park. Recreational access to the banks at Site 2-1 would be completely restricted during the construction period due to construction activities and potential hazards to recreationists. No fishing, swimming, or boating would be possible at the site.

While bike trails and running paths could be rerouted or accessible a short distance away from the construction sites, there would still be an overall reduction in the recreation quality with the construction over a 1½-year period or longer, and therefore, the effect on recreation would be significant. Construction would also occur during the summer months at the peak of recreation activities in the American River Parkway. Further, proximity to construction equipment and activities may degrade the quality of recreational experiences due to noise, visual effects, odors, and air pollutants.

Such closures and disturbances would result in non-compliance with American River Parkway Plan Policy 4.13, which states that flood control berms, levees, and other facilities should be, to the extent consistent with proper operation and maintenance of these facilities, open to the public for approved uses, such as hiking, biking, and other recreational activities. However, the Proposed Action would result in localized and temporary closures and the proposed improvements to the levee site would improve stability required for the proper maintenance of the levees to prevent future flood risk,

reducing potential for future closures of recreational facilities. The proposed action would also not preclude future access to recreational areas and would not conflict with the purposes and intents of the American River Parkway Plan and the Wild and Scenic Rivers Act.

Although the construction period would be temporary and localized, the effects on recreational access would be a significant temporary effect on recreation activities during construction. Mitigation measures would be implemented to reduce impacts on recreation. However, even with mitigation measures, the Proposed Action's effects on recreation during construction would be significant and unavoidable.

ARCF GRR FEIS/FEIR Mitigation Measures

The following 2016 ARCF GRR Final EIS/FEIR mitigation measure found in Section 3.14 (page 292) is incorporated into the Proposed Action, with modifications to provide clarity and greater local specificity on communicating recreational closures of recreation facilities affected by the Proposed Action.

> **Mitigation Measure REC-1: Avoid and Minimize Effects on Recreational Use.** USACE and the CVFPB would implement the following measures to reduce temporary, short-term construction effects on recreational facilities in the Project Area:
>
> - Coordinate with recreation user groups prior to and during construction for input into mitigation measures that would reduce effects to the maximum extent practicable. Advance notice would be given to recreation users, informing them of anticipated activities and detours to reduce the effects. Closures of paved trails would be noticed 14-days in advance via signage at the detour locations.
>
> - Post signs at major entry points for parks and recreation facilities clearly indicating closures and estimated duration of closures. Information signs would notify the public of alternate parks and recreation sites, including boat launch ramps, and provide a contact number to call for questions or concerns.
>
> - Provide flaggers and post warning signs and signs restricting access before and during construction to ensure public safety.
>
> - Provide marked detours for all bike trails and on-street bicycle routes that would be temporarily closed during construction. Detours would be developed in consultation with the City of Sacramento Bicycle and Pedestrian Coordinator at least 10 days before the start of construction activities, as applicable. Signs that clearly indicate closure routes would be posted at major entry points for bicycle trails, information signs would be posted to notify motorists to share the road with bicyclists where necessary, and a contact number would be provided to call for questions or concerns. Fences would be erected to prevent access to the Project Area.

- Provide traffic control in areas where recreational traffic would intersect with construction vehicles.
- If any access point needs to be closed during construction, post notices providing alternative access routes.
- Upon completion of levee improvements, coordinate with the City of Sacramento and Sacramento County to restore access and repair any construction-related damage to recreational facilities to pre-project conditions.

Summary

The ARCF GRR FEIS/FEIR concluded that the mitigation measure would reduce project impacts on recreation, but construction-related impacts would remain significant and unavoidable. The mitigation measure adopted in the ARCF GRR FEIS/FEIR, with greater specificity, would also reduce many of the impacts of the Proposed Action on recreation to a less-than-significant level. However, the temporary closures of recreational facilities would remain significant and unavoidable. Construction of the Proposed Action would not result in recreation impacts that would be new or more severe than those addressed in the ARCF GRR FEIS/FEIR. Therefore, the construction-related temporary closures of recreation facilities are already adequately addressed in the ARCF GRR FEIS/FEIR.

3.13 Public Utilities and Service Systems

3.13.1 Environmental Setting

3.13.1.1 Regulatory Setting

Section 3.16 of the ARCF GRR FEIS/FEIR (page 313) identified no Federal or State environmental laws and regulations that apply to regulating public utilities and service systems. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply and described the status of compliance with those laws and regulations. There has been no change to the applicable listed regulations related to public utilities and service systems.

3.13.1.2 Existing Conditions

Section 3.16 of the ARCF GRR FEIS/FEIR (pages 313 through 315) describes the regional and local setting in the vicinity of the ARCF 2016 Project, American River Contract 1 (Proposed Action) and current conditions have not changed.

3.13.2 Methodology and Basis of Significance

3.13.2.1 Methodology

This analysis uses the same methodology described in the ARCF GRR FEIS/FEIR Section 3.16 (page 316). Effects on public utilities and service systems were identified by comparing existing service capacity and facilities against project implementation.

Evaluation of potential impacts on utilities and service systems 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. The evaluation assumed modifications to levees would occur in phases from June through October.

3.13.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.16 (page 316) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant effect related to utilities and public services if it would:

- Require the construction or expansion of any utility systems due to project implementation;
- Disrupt or significantly diminish the quality of the public utilities and services for an extended period of time;
- Create an increased need for new fire protection, police protection, or ambulance services or significantly affect existing emergency response times or facilities;
- Create damage to public utility and service facilities, pipelines, conduits, or power lines; or
- Create inconsistencies or non-compliance with regional planning documents.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that take into consideration the following additional or modified significance criteria:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
- 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.
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste.

Effects Not Evaluated Further

The Proposed Action includes construction activities, including clearing, grubbing, grading, bank protection, creation of planting benches, and installation of launchable rock trenches, resulting in an increase in dust in the Project Area. To meet air quality requirements, some amount of water would be used for dust suppression purposes during construction activities. In addition, the Proposed Action does not include residential or commercial developments that would create new potable water demand, generate new wastewater demand or contribute to existing wastewater systems, or require new sources of gas, electricity, or other utilities that would require the expansion of public utilities. Therefore, no further evaluation of effects of the Proposed Action on these public services and utilities is necessary.

3.13.3 Impact Analysis

3.13.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the proposed action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, public utilities and services would be adversely affected. Such an event could cause inundation from high flows and destruction or damage to utility lines, natural gas supply lines, and water or wastewater piping or facilities, all of which could lead to widespread contamination, temporary power outages, and interruptions of other utilities in the Project Area and surrounding areas. Under this alternative, there would be no construction-related generation of solid waste. However, if a levee failure were to occur, a significant amount of debris would be produced from the flooded properties. This would include vegetation, debris, and contents from business and residential development, and hazardous and toxic waste. The quantity of debris is unknown because the size of flood and damage is unpredictable, but it is likely that the debris caused by a flood would be far more than the debris generated by the construction of this project. All of these effects could be considered significant; however, the timing, duration, and magnitude of a flood event are speculative and unpredictable. Therefore, a precise significance determination cannot be made at this time.

3.13.3.2 Proposed Action

Section 3.16 of the ARCF GRR FEIS/FEIR (pages 317 through 323) analyzed impacts on public utilities and service systems in the Project Area. The analysis determined that construction activities could adversely affect existing electric power, natural gas, or telecommunications—specifically, overhead power lines and telecommunication facilities or stormwater and wastewater infrastructure facilities and systems. Drop inlets, outfall structures, drainage pipes, and other infrastructure elements that are buried,

penetrate, or protrude from the levee would have to be identified, removed, or relocated before or during construction activities. Existing utilities that are functional and operational would be relocated accordingly. Possible relocation methods could be: (1) a surface line over the levee prism; or (2) a through-levee line equipped with positive closure devices. More information on the Proposed Action that was not available at the time of the ARCF GRR FEIS/FEIR is provided in the analysis below.

Construction Solid Waste

Construction of the Proposed Action would temporarily increase the generation of solid waste in the Project Area. Sources of solid waste related to construction activities would include cleared vegetation and debris. Waste materials (including cleared vegetation) and excess earth materials (e.g., organic soils, roots, grass, and excavated materials that do not meet levee embankment criteria) would hauled off-site to a suitable disposal location. These materials, along with other solid waste materials, such as asphalt, concrete, pipes, etc., would also be removed from Project Area and would be disposed of at an appropriate, licensed landfill.

The location of the landfill used for disposal of construction-related waste would be determined by the construction contractor before the start of construction activity. This disposal would be selected based on capacity, type of waste, and other factors. Only those landfills determined to have the ability to accommodate the construction disposal needs of the Proposed Action would be used. The Kiefer Landfill, owned and operated by Sacramento County and located about 13 miles southeast of the Project Area, would likely be the landfill used. The Kiefer Landfill is 660 acres, including perimeter areas and bufferlands; it has a capacity of 117 million cy of disposal areas disturbed over 11 modules. Currently, 40 million cy of waste occupy 3 of the 11 modules that are actively used for disposal of solid waste materials and these could accommodate all construction waste from the Proposed Action. Other landfills that may also be utilized include the Yolo County Central Landfill, Western Regional Landfill in Placer County, and the Lockwood landfill in Sparks Nevada. Project construction and operation would not cause existing regional landfill capacity to be exceeded; therefore, this impact would be less than significant.

Emergency Response Services

The extent and intensity of proposed construction activities, including road closures and traffic circulation patterns associated with the proposed action, could increase the need for first responders to quickly respond to emergency situations in the Project Area, which could result in a temporary significant impact on the capacity of emergency response services. Implementation of mitigation measures provided in the ARCF GRR FEIS/FEIR would reduce impacts on associated emergency response service levels to a less-than-significant level, because USACE and the CVFPB would prepare and implement a response plan to streamline access points and reduce response times, and would notify first responders of the potential for disruptions in the Project Area.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measure found in Section 3.16 is incorporated into the Proposed Action to mitigate potential damage to utilities and infrastructure and reduce service disruptions during construction of the proposed action.

> **Mitigation Measure UTIL-1: Avoid and Minimize Service Disruptions and Damage to Utilities and Infrastructure.** USACE and the CVFPB would implement the measures listed below before construction begins to avoid and minimize potential damage to utilities and infrastructure and reduce 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.
> - Notify the appropriate agencies and affected landowners regarding any potential interruptions of service.
> - Verify through field surveys and the use of Underground Service Alert services the locations of buried utilities in the Project Area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earthmoving activities.
> - Before the start of construction, prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan would identify chain-of-command rules for notifying 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 caused by construction detours.

Summary

The previously adopted mitigation measures in the ARCF GRR FEIS/FEIR would adequately reduce impacts to a less-than-significant level. There would be no residual significant impact.

3.14 Hazards and Hazardous Materials

3.14.1 Environmental Setting

3.14.1.1 Regulatory Setting

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 322–323) identified Federal or State environmental laws and regulations that apply to hazards and hazardous materials. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. Additional applicable laws and regulations not previously listed in the ARCF GRR FEIS/FEIR are listed below.

Federal

- Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act)
- 49 CFR 171.1—Applicability of Hazardous Materials Regulations

State

- 19 CCR Division 2, Chapter 4, Hazardous Material Release Reporting, Inventory, and Response Plans
- 26 CCR, California Health and Safety Code [HSC], Chapter 6.95, Section 25501; Section 25503.5, Hazardous Material Management Plans and Hazardous Material Inventory Statement Programs
- 22 CCR HSC Division 4.5, Chapter 6.5, Hazardous Waste Control Law; Chapter 11, Section 66261.3; Section 66260.10, Hazardous Materials Transportation
- 22 CCR HSC Division 37, Section 57008, California Human Health Screening Levels, California Land Environmental Restoration and Reuse Act of 2001 (Chapter 764, Statutes of 2001, Office of Environmental Health Hazard Assessment, 2010)
- 19 CCR HSC Division 2, Section 25531, California Accidental Release Response Plan Programs
- 29 CFR, Occupational Safety and Health Administration (OSHA); 8 CCR, Cal/OSHA regulations for use of hazardous materials in the workplace

3.14.1.2 Existing Conditions

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 323 through 325) describes the regional and local setting in the vicinity of the Project Area relative to hazards and hazardous materials. A Phase 1 Environmental Site Assessment (Phase 1 ESA) was conducted as part of the ARCF GRR FEIS/FEIR. The Phase 1 ESA identified five hazardous waste or materials sites within the entire study area. However, those five sites are not located within the Project Area. An updated review of the California Department of Toxic Substances Control's EnviroStor database and State Water Resources Control

Board's Geotracker[86, 87] was conducted in November 2019 and no new hazardous waste sites were listed or shown within the Project Area.

The California Department of Forestry and Fire Protection's mapping information determined that the Project Area is not located within a very high fire hazard severity zone.[88]

3.14.2 Methodology and Basis of Significance

3.14.2.1 Methodology

This analysis generally uses the same methodology described in Section 3.17 (page 322) of the ARCF GRR FEIS/FEIR. The methodology addressed potential sources of hazards and risks from hazardous materials that may be associated with the proposed alternatives.

3.14.2.2 Basis of Significance

This analysis uses the same basis of significance described in Section 3.17 (page 325) of the ARCF GRR FEIS/FEIR, as restated below.

The Proposed Action would result in a significant impact related to hazardous wastes and materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment; or
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency excavation plan.

Since publication of the ARCF GRR FEIS/FEIR, changes to Appendix G of the State CEQA Guidelines were adopted that that address excessive noise effects on people living or working within two miles of a public airport, and risks associated with wildfire. As a

86 California Department of Toxic Substances Control, 2019. Available: https://www.envirostor.dtsc.ca.gov/public/map/?global_id=CAT080031115. Accessed November 21, 2019 and December 13, 2019.

87 State Water Resources Control Board. 2019. Geotracker Available: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=sacramento. Accessed November 21, 2019 and December 13, 2019.

88 California Department of Forestry and Fire Protection, 2007. Fire Hazard Severity Zone Maps and Adopted State Responsibility Area Fire Hazard Severity Zone Maps. https://osfm.fire.ca.gov/media/6756/fhszs_map34.pdf. Accessed December5 and December 13, 2019.

result, this analysis also takes into consideration the following additional or modified significance criteria:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, would the project result in a safety hazard or excessive noise for people residing or working in the Project Area.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Effects Not Evaluated Further

The Project Area is not located within an airport land use plan or within two miles of a public airport. The closest public airports to these project sites are Sacramento Executive Airport (5.5 miles) and Sacramento Mather (6 miles), respectively. Therefore, no impact would occur for the Proposed Action.

The Project Area is not located in a very high fire hazard severity zone as mapped by the California Department of Forestry and Fire Protection.[89] In addition, the Proposed Action does not involve the development of occupied structures that could be at risk as a result of wildfires. Therefore, no impact would occur. The ARCF GRR FEIS/FEIR identified five hazardous waste sites in the study area. As described previously, because none of these hazardous waste sites are within the Project Area and none were found based on an updated search, no further evaluation is necessary.

3.14.3 Impact Analysis

3.14.3.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, the proposed action would not be implemented, and the Sacramento metropolitan area would continue to be at risk of flooding due to levee failure from seepage, slope stability, overtopping, or other erosion concerns.

Under these conditions, a flood event could cause portions of the levees to fail, triggering widespread flooding and related damage. If a catastrophic flood were to occur, emergency flood fighting and clean-up efforts would occur to contain releases of hazardous materials. Timing and duration of control would correlate with flood fighting needs, but it is foreseeable that potential hazards and hazardous materials would contribute to exceeding applicable environmental and health thresholds and could expose people to substantial localized pollutant concentrations. Depending on the magnitude of a flood, flood fighting could last for weeks or even months. Moreover, due to the unpredictable natural of emergency responses, the application of best management practices to control all hazards and hazardous materials would be infeasible. All of these effects could be considered significant; however, the timing, duration, and magnitude of a

[89] California Department of Forestry and Fire Protection, 2007. Fire Hazard Severity Zone Maps and Adopted State Responsibility Area Fire Hazard Severity Zone Maps. https://osfm.fire.ca.gov/media/6756/fhszs_map34.pdf. Accessed December 5 and December 13, 2019.

flood event are speculative and unpredictable, and therefore precise significance determination cannot be made at this time.

3.14.3.2 Proposed Action

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 325 through 329) analyzed the impacts associated with Hazardous Wastes and Materials during construction of levee improvements throughout the Sacramento area, including construction of levee improvements in the Project Area. The ARCF GRR FEIS/FEIR identified that implementation of the proposed levee improvements would involve the use of potentially hazardous materials commonly used in construction projects, such as fuels, oils and lubricants, and cleaners. Over the construction period, construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations. The ARCF GRR FEIS/FEIR stated that any hazardous substance encountered during construction would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations.

Compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities. While the risk of exposure is considered low and potentially significant, implementation of the mitigation measures discussed below, would reduce the impacts of the Proposed Action to a less-than–significant level.

While small quantities of construction related fuels, oils, and lubricants would be used and/or stored within 0.25 mile of Caleb Greenwood Elementary School and CSUS, these materials are not classified as acutely hazardous and implementation of the Proposed Action would not emit any hazardous materials or require handling of acutely hazardous materials, substances or waste during construction. Only the H Street Bridge, east of Caleb Greenwood Elementary School and north of CSUS, would be used as a potential haul route for the Proposed Action. However, construction activities would not require the use or handling of acutely hazardous materials, substances or waste. Therefore, this impact would be less than significant.

Emergency Access

For Site 2-1, haul routes for riprap, bedding, gravel, and IWM would travel to the sites from either Interstate 80 (I-80) to the north or from U.S. Highway 50 (U.S. 50) to the south. As discussed in Section 3.8, *Transportation and Circulation*, in this Supplemental EA/EIR, access to the erosion protection sites would be through existing neighborhoods and recreational areas. As depicted on Figure 2-7 and Figure 2-8 in Chapter 2, Alternatives, of this EA/EIR, haul trucks would travel to the staging area at the downstream end of Site 2-1 by traveling along the existing Regional Transit bus line or Carlson Drive through the River Park neighborhood and unload materials at the staging area adjacent to Glenn Hall Park. Haul trucks leaving the staging area at this location would continue to use the Regional Transit route or Carlson Drive to exit the River Park neighborhood and use the H Street Bridge to access Howe Avenue back to the freeways. Some transfer dump trucks and

other construction vehicles and equipment may exit through the Seventh-Day Adventist Church parking lot, except for Saturdays, or travel further upstream using the bike path and exit onto State University Drive to exit and travel to back to Site 2-1 using surface streets or to travel to other erosion protection sites, as needed.

Construction traffic associated with the Proposed Action could temporarily slow traffic flow and reduce emergency response times at or near the access roads within the Project Area during the construction period, which is expected to occur annually from May to October. Construction activities are anticipated during weekdays and Saturdays between 7:00 a.m. and 6:00 p.m. It is possible that during these periods, emergency vehicles could be briefly delayed along haul routes and within the American River Parkway maintenance roads and response times could be reduced. Therefore, the Proposed Action effects on emergency access would be short-term and significant until construction is completed. Implementation of the mitigation measures from the ARCF GRR FEIS/FEIR as clarified in Section 3.8, *Transportation and Circulation*, and Section 3.13, *Public Utilities and Service Systems*, in this Supplemental EA/EIR would reduce potential impacts on emergency access to a less-than-significant level.

ARCF GRR FEIS/FEIR Mitigation Measures

The following ARCF GRR FEIS/FEIR mitigation measures are incorporated into the Proposed Action.

> **Mitigation Measure HAZ-1: Avoid and Minimize Hazards.** USACE and the CVFPB would implement the following measures to avoid and minimize the impact of hazards and hazardous materials.
>
> - Comply with applicable regulations to reduce the potential for an accidental release of hazardous materials during construction. The contractor would also be required to prepare a SWPPP, which details the methods to prevent run-on and discharges from the construction sites into drainage systems, lakes, or rivers. This plan would include SWPPP BMPs that would be implemented accordingly.
> - Test each erosion protection site for contaminants before construction, and dispose of any materials found in accordance with all Federal, State, and local regulations at an approved disposal site.
>
> Implementation of these mitigation measures would reduce impacts from hazardous materials at project sites to a less-than-significant level. If significant time has elapsed between approval of this document and construction, additional investigations should be done to reduce the risk of encountering hazardous wastes during construction.

Summary

The mitigation measure adopted in the ARCF GRR FEIS/FEIR would adequately reduce impacts addressed to a less-than-significant level. There would be no residual significant impact.

CHAPTER 4
Cumulative and Growth-Inducing Effects

NEPA and CEQA require the consideration of cumulative effects of the proposed action, combined with the effects of other projects. NEPA defines a cumulative effect as an effect on the environment that results from the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). The State CEQA Guidelines define cumulative effects as "two or more individual effects which, when considered together, compound or increase other environmental impacts" (14 CCR Section 15355).

The cumulative effects of the overall ARCF project were covered in the 2016 ARCF GRR FEIS/FEIR (pages 335 through 357). The thorough cumulative analysis in the 2016 ARCF GRR FEIS/FEIR is incorporated by reference. But the temporal scope of the analysis was necessarily vague and, therefore, for the purposes of the Proposed Action, the temporal scope of the cumulative effects analysis in this Supplemental EA/EIR considers past projects that continue to affect the Project Area in 2020, projects that are under construction in 2020, and any reasonably foreseeable future projects.

4.1 Cumulative Projects

4.1.1 Projects Contributing to Potential Cumulative Effects

This section briefly describes other similar or related projects, focusing on flood-risk reduction and habitat restoration projects that have similar effect mechanisms and affect similar resources as would the Proposed Action. Although the 2016 ARCF GRR Final EIS/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 various mechanisms, 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.

Several major past, present, and probable future projects 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 Action to properly evaluate the cumulative effects of this action and these other similar projects on the environment.

4.1.1.1 Lower American River Common Features Project

Congressional authorizations in WRDA 1996 and WRDA 1999 enabled USACE, the CVFPB, and SAFCA to undertake various improvements to the levees along the north and south banks of the American River, as well as the east bank of the Sacramento River. Under WRDA 1996, this involved the construction of 26 miles of slurry walls along the left and right banks of the American River. The WRDA 1999 authorization included a variety of additional levee improvements, such as levee raises and levee widening improvements, to ensure that the levees could pass an emergency release of 160,000 cubic feet per second. The WRDA 1996 and 1999 projects were completed in 2016, with mitigation site monitoring ongoing.

4.1.1.2 American River Watershed Common Features 2016 Project

The greater ARCF project is scheduled for construction from 2019 through 2024. The project would involve construction of levee improvements along the American and Sacramento River levees as well as proposed improvements to the Natomas East Main Drainage Canal 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 would widen the Sacramento Weir and Bypass. The project would also involve construction of a number of mitigation sites in the area. In addition to the improvements that are part of the Proposed Action, the ARCF GRR includes:

- construction of a seepage and stability berm along Front Street (planned for 2020);
- additional improvements to the Sacramento River East Levee between downtown Sacramento and Freeport (planned for 2021–2023);
- erosion protection on the American River (planned for 2021–2023);
- erosion protection on the Sacramento River (planned between 2020 and 2023);

- improvements to the "East Side Tributaries, including the Magpie Creek Diversion Channel, the east bank of the Natomas East Main Drainage Canal/Steelhead Creek. Pleasant Grove Creek Canal, and Dry, Robla, and Arcade Creeks (planned for 2023); and

- widening the Sacramento Weir and Bypass, located along the north edge of the City of West Sacramento in Yolo County (planned for 2021–2023).

4.1.1.3 American River 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, the 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 Watershed 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 the Water Resources Reform and Development Act of 2014 (Public Law 113-121). Construction on Reach I, and D began in 2018. Construction of Reach H started in 2019, and Reaches A, B, E, F, G, and are still in design. Construction on Reaches D, H, and I is expected to continue in 2020, and construction in Reach B is planned to begin in 2020 and continue into 2021. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.4 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 time frame 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 2016b).

4.1.1.5 Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP was instituted in 1960 to be constructed in phases. Bank protection has generally been constructed on an annual basis. Phase I was constructed from 1963 to 1975 and consisted of 436,397 linear feet of bank protection. Phase II was authorized in 1974 and provided 405,000 linear feet of bank protection. The SRBPP directs USACE to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1965, erosion control projects at twelve sites covering 16,141 linear feet of the south and north banks of the lower American River have been implemented. This is an ongoing project, and additional sites requiring maintenance would continue to be identified indefinitely until the remaining authority of 4,966 linear feet is exhausted over the next 3 years. WRDA 2007 authorized an additional 80,000 linear feet of bank protection to Phase II, which would be initiated upon approval of the SRBPP Post Authorization Change Report.

4.1.1.6 West Sacramento General Reevaluation Report

The West Sacramento GRR study determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the West Sacramento GRR 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 seepage, stability, levee height, and erosion concerns along the West Sacramento levee system. 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 GRR 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. In addition, the Southport setback levee is currently under construction as part of a local effort, which includes all of the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.7 Central Valley Flood Protection Plan of 2017

The Central Valley Flood Management Planning Program is one of several programs managed by DWR under FloodSAFE 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 Improvements areas. The Central Valley Flood Management Planning Program addresses State flood management planning activities in the Central Valley.

The Central Valley Flood Protection Plan (CVFPP) is one of several documents adopted by the CVFPB to meet the requirements of flood legislation enacted in 2007 and, specifically, the Central Valley Flood Protection Act of 2008. DWR adopted the updated CVFPB in 2017, with a focus on the Sacramento and San Joaquin Watershed Basin-Wide Feasibility Studies (BWFSs), Regional Flood Management Planning, and the Central Valley Flood System Conservation Strategy. The results of these efforts would support implementation of future CVFPP actions.

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 Action, it is important to consider the long-term aspects of the CVFPP in conjunction with the Proposed Action.

As part of the CVFPP, the Sacramento 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 I-80 overcrossing; and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass (DWR 2016).

4.1.1.8 Lower Elkhorn Basin Levee Setback Project

The 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 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 project, and constructing a setback levee in the Lower Elkhorn Basin on the east side of the Yolo Bypass.

The Lower Elkhorn Basin Levee Setback project would also include 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, agricultural lands, and public recreation. Construction of the Lower Elkhorn Basin Levee Setback project is planned for 2020 and 2021. Construction effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.9 Folsom Dam Safety and Flood Damage Reduction Project

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project, 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 modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam. The project was completed in fall 2017.

4.1.1.10 Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual (WCM) is being updated 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 Update would utilize existing and authorized physical features of the dam and reservoir, specifically the recently completed auxiliary spillway. Along with evaluating operational changes to utilize the additional capabilities created by the auxiliary spillway, the WCM Update would assess the use of available technologies to enhance the flood risk management performance of Folsom Dam to include a refinement of the basin wetness parameters and the use of real time forecasting.

Further, the WCM Update would evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study would result in an Engineering Report as well as a Water Control Manual implementing the recommendations of the analysis.

4.1.1.11 Folsom Dam Raise

Construction of the Folsom Dam Raise project would likely follow completion of the Joint Federal Project and the WCM projects. The Dam Raise project includes 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 the three emergency spillway gates and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). Similar to the ARCF Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction activities in 2019 included Dike 8 construction, followed by Dike 7 in 2020; Mormon Island Auxiliary Dam, the Left and Right wing of Folsom Dam, and Dikes 1–3 in 2021; and Dikes 4–6 in 2022. The ecosystem restoration projects are not scheduled at this time. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.12 SAC 5 Corridor Enhancement Project

Caltrans is constructing the SAC 5 Corridor Enhancement Project on Interstate 5 (I-5) from 1.1 miles south of Elk Grove Boulevard to the American River Viaduct. The project will rehabilitate pavement and other related assets, construct 23 miles of new High Occupancy Vehicle lanes, install new fiber optic lines and extend the I-5 northbound #1 lane to improve merging. The project includes rehabilitating 67 lane miles of mainline and all ramps/connectors. The project also includes adding auxiliary lanes and extending acceleration and deceleration lanes. Project construction requires lane closures on I-5 and is expected to continue through December 2022. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.13 Bridge District Specific Plan

The Bridge District Specific Plan, formerly the Triangle Plan, was adopted in 1993 and significantly updated in 2009 (City of West Sacramento 2009). The intent of the Bridge District Specific Plan was to provide a framework for development of a well-planned, waterfront-oriented urban district for the City of West Sacramento, along the west bank of the Sacramento River. A number of housing complexes have been built, as well as other riverfront recreational improvements, and the Barn, a local event space and beer garden along the Sacramento River just south of Sutter Health Park (formerly known as Raley Field). Ongoing development includes additional housing units currently under construction. Construction, road construction, and construction traffic associated with the Bridge District have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.14 Sacramento Railyards Project

The Railyards district is located just north of Downtown Sacramento and south of the River District and once served as the western terminus of the 1860s Transcontinental

Railroad, with the largest locomotive repair and maintenance facility west of the Mississippi River. Today, the Railyards continue to house a major transportation hub and the City of Sacramento has proposed to redevelop the area into a mixed-use, transit-oriented development. The historic 244-acre Southern Pacific site would be transformed into a dynamic, urban environment featuring a state-of-the-art mass transit hub that would serve residents, workers, and visitors. In October 2016, the City Council approved a planning entitlement for the Sacramento Railyards. The project includes housing units, retail space, office space, a medical campus, hotels, parks, and a soccer stadium (City of Sacramento 2016). Construction, road construction, and construction traffic associated with the Railyards project have the potential to contribute to cumulative impacts with the Proposed Action.

4.1.1.15 Delta Shores Development Project

Delta Shores is an approximately 800-acre master planned development that will include an estimated 1.3 million square feet of planned retail, an estimated 250,000 square feet of hotel and commercial uses, and an estimated 4,900 residential units. Most of the project site is located east of I-5 at Cosumnes River Boulevard, east of Freeport and north of the Sacramento Regional County Sanitation District Wastewater Treatment Plant Bufferlands. The Beach Lake Levee (operated and maintained by SAFCA) is adjacent to the Delta Shores southern boundary (east of I-5). Approximately 100 acres of the Delta Shores project site lies along the west side of I-5 and abuts the Sacramento River East Levee in the northwest corner and near the southwest corner. In this western portion of Delta Shores, medium- and high-density residential housing will be developed on the north side of Stonecrest Avenue. Adjacent to and north of the housing, and adjacent to Freeport Boulevard on the west side, a park will be developed. Medium- and low-density residential housing will be developed on the south side of Stonecrest Avenue.

Cosumnes River Boulevard was recently extended by approximately 3.5 miles (from the east side of State Route 99 to I-5), and a new I-5 interchange was constructed to provide regional connectivity for local residents and access to the future Delta Shores development (particularly the shopping center); the road and interchange improvements were completed in 2015. Construction on the shopping center began in 2016, and the complex opened in 2017. Construction, road construction, and construction traffic associated with Delta Shores have the potential to contribute to cumulative impacts with the Proposed Action.

4.2 Cumulative Effects

4.2.1 Visual Resources

Cumulative impacts on visual resources are primarily related to other construction projects that could occur within the same visual viewscape as the Proposed Action Area at the same time and result in loss of visual quality both during construction and after construction. Construction of Alternative 2 approved of in the Record of Decision for the ARCF GRR FEIS/FEIR would result in a significant amount of large trees and other

vegetation removed along the Sacramento River and the American River. Other projects in the cumulative setting (see Section 4.1 in this chapter) have and could result in the removal of large trees and other vegetation. Implementation of the Proposed Action, when combined with other past, current, and future projects in the vicinity, would result in a significant cumulative impact on visual resources, primarily from removal of vegetation. Additionally, the long time period for replanted vegetation to reach a size similar to the vegetation removed as a result of construction would be considered a cumulatively significant effect on visual resources along the Sacramento and American Rivers.

As part of the Proposed Action, construction crews, equipment, and haul trucks would be visible to residents adjacent to local streets, and staging areas, and to residences adjacent to the work sites. In addition, construction would be visible to recreationists within the American River Parkway. However, construction would be temporary, and because construction would proceed along the levees in a linear fashion, the views of construction crews, equipment, and haul trucks would be of short duration, and other current projects in the cumulative setting would not be visible within the same viewshed as the Proposed Action. Additional nighttime lighting for the Proposed Action staging areas would be short term and would add few sources of light to the current cumulative nighttime light in the urbanized areas adjacent to the staging areas. Further, nighttime light from the Proposed Action would be mitigated to reduce effects to minimal levels, as described in Chapter 3, Section 3.2, *Visual Resources*, and the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to visual resources.

4.2.2 Hydrology and Water Quality

A majority of the levee projects in the cumulative setting, including the Proposed Action, involve subsurface geotechnical work to repair levees in place and, consequently, there would be no effects on flooding. Some projects, such as the West Sacramento GRR and the SRBPP, include levee raises, flood walls, and bank protection. In addition, the West Sacramento GRR and Lower Elkhorn Basin Levee Setback Project include construction of new setback levees. The Proposed Action, in addition to other levee projects in the region, are designed to current Federal flood design criteria and include vegetation to help stabilize the banks and, thus, reduce the rate and amounts of surface run-off from the levee slope into waterways. The Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to flood system capacity.

Related projects, including the Sacramento River Bank Protection Project and the West Sacramento GRR, could be under construction during the same time frame as the Proposed Action. If construction occurs during the same time frame, water quality could be diminished, primarily due to increased turbidity from soil released during construction activities. Water quality could be affected in or adjacent to the Proposed Project area and upstream and downstream of the work area. Construction activities such as clearing and grubbing, grading, and rock placement, have the potential to temporarily degrade water

quality through the direct release of soil and construction materials into water bodies or the indirect release of contaminants into water bodies through runoff. All projects would be required to comply with the NPDES Construction General Permit requirements of the RWQCB and overall water quality would be required to meet the Basin Plan objectives. The Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to water quality.

4.2.3 Vegetation and Wildlife

The Proposed Action has the potential to contribute to the loss or degradation of sensitive habitats, including riparian woodland and scrub, waters of the United States, and waters of the State and forestland. Similar potential for adverse effects on habitats would be associated with the flood-risk reduction projects, including future ARCF contracts proposed along the Sacramento River and the American River, and removal of high-hazard vegetation 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. Most potential adverse effects of the Proposed Action and the related levee projects would be associated with construction disturbances of habitats, but permanent loss of habitat would also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.4, *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. Although the Proposed Action's temporary impacts would be significant, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to the permanent loss or degradation of sensitive habitats or loss of forestland.

4.2.4 Fisheries

Project implementation has the potential to contribute to the loss or degradation of fish habitat, including near-shore aquatic SRA habitat. Similar potential for adverse effects on habitats would be associated with the flood-risk reduction projects, including future ARCF contracts proposed along the American River and Sacramento River, and construction of bank protection projects and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to contribute to the loss or degradation of fish habitat, including SRA habitat, resulting in significant cumulative impacts. Potential adverse effects of the Proposed Action and the related levee projects would be associated with construction disturbances of aquatic habitats, but permanent loss of SRA habitat would also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.5, *Fisheries*, including water quality protection measures, and establishment of on-site and off-site SRA habitat creation, and 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 CWA Sections 401 and 404. Although the Proposed Action's temporary impacts would be significant, the Proposed Action would not result in a cumulatively considerable contribution to significant cumulative effects on the permanent loss or degradation of fish habitat.

4.2.5 Special Status Species

Project implementation has the potential to adversely affect special status species: Crotch bumble bee, valley elderberry longhorn beetle, western pond turtle, western yellow-billed cuckoo, bank swallow, Swainson's hawk, Cooper's hawk, burrowing owl, white-tailed kite, purple martin, heron- and egret rookeries, other nesting birds, and bats, American badger, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Central Valley fall-/late fall-run Chinook salmon, hardhead, western river lamprey, and Sanford's arrowhead. Similar potential for adverse effects on special status species and their habitats would be associated with the flood-risk reduction projects, including future ARCF 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 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 3.6, *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.

4.2.6 Cultural Resources

Implementation of the Proposed Action, other flood-risk reduction projects, including the ARCF GRR projects proposed along the American River and Sacramento River, and other projects considered in this cumulative analysis, have the potential to contribute to the loss or degradation of known and unrecorded archaeological resources, known prehistoric-period Cultural Landscapes, known and unknown human remains, known and unknown historic-period archaeological resources.

Most potential effects of the Proposed Action and other related projects to cultural resources would be associated with construction disturbances of archaeological sites, prehistoric Cultural Landscapes, and human remains. These effects could contribute to the loss of intact cultural resources and human remains in the Sacramento region.

Implementation of the mitigation measures presented in Chapter 3, Section 3.7, *Cultural Resources*, would reduce or avoid the effects of the project on known resources and on unknown archaeological resources and human remains that could potentially be discovered during project construction, and the Proposed Action would have a less than considerable contribution to cumulatively effects on cultural resources.

4.2.7 Transportation

The majority of traffic effects related to the Proposed Action would occur along I-80, U.S. 50, and local roadways within the City and County of Sacramento, in the vicinity of the Proposed Action area. Other levee projects would occur at locations that are relatively distant. There are no known projects that would affect the local haul routes shown in Chapter 2, Project Description. Because potentially significant traffic effects are only expected to occur for approximately six months during the project construction period, it is difficult to predict if other specific projects would have traffic volumes that would cumulatively affect traffic during these same time periods. If other projects substantially affect traffic during these peak construction periods, the potential cumulative effects would be significant on segments of I-80 and U.S. 50, and the Proposed Action would make a considerable contribution. Mitigation described in Section 3.8, *Transportation and Circulation*, includes a traffic control and road maintenance plan to reduce the Proposed Action's impact. This mitigation requires emergency service providers be notified in advance of road closures and detours and requires emergency access to be maintained. Because other major construction projects would also implement traffic control plans specifically designed to provide appropriate emergency access, the Proposed Action would not result in an incremental contribution to a significant cumulative effects related to emergency vehicle access or response times.

Bicycle and pedestrian paths affected by the Proposed Action would be in the vicinity of the construction activities and along potential haul routes within the American River Parkway and nearby neighborhoods. As part of mitigation measures, the Proposed Action would provide signage and detours to maintain safe pedestrian and bicyclist access around the construction areas at all times. In general, major construction projects concurrent with the Proposed Action would also implement traffic control plans specifically designed to provide continued safe routes for alternative modes of transportation during construction. Therefore, the Proposed Action would not result in an incremental contribution to a significant cumulative effect related to performance or safety of alternative modes of transportation.

4.2.8 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.[90] Several other construction projects

[90] SMAQMD. 2014 (as amended). *Guide to Air Quality Assessment in Sacramento County* (CEQA Guide). Available: http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools. Accessed March 26, 2020.

are expected to occur simultaneously in the Sacramento Valley Air Basin 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 Sacramento Valley Air Basin through implementation of SMAQMD emissions reductions practices. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit).

Furthermore, the Proposed Action is part of the larger ARCF 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 NOx emissions. As discussed in Section 3.9, *Air Quality*, the Proposed Action would result in a cumulatively considerable incremental contribution to a significant cumulative effect related to regional air quality, and this contribution would be mitigated through implementation of Mitigation Measures described in Section 3.9.

With respect to localized air pollutants such as CO, TACs, and odors, the Proposed Action and the related projects would generate these pollutants only during construction, and they would be temporary and short term. Some of the related projects may generate concentrations of these pollutants at levels that exceed relevant thresholds. However, the CEQA/NEPA documents for the related projects contain mitigation measures that must be implemented to reduce individual project emissions. As discussed in Section 3.9, the Proposed Action would not generate CO, TACs, or odors at levels that would represent a health hazard. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to generation of CO, TACs, or odors during construction.

4.2.9 Greenhouse Gas Emissions and Energy Consumption

Climate change as related to GHG emissions is inherently cumulative. Though significance thresholds can be developed by air districts and State and Federal regulatory agencies, these thresholds and their related goals are ultimately designed to affect change at a global level. Therefore, the analysis presented in Section 3.10, *Greenhouse Gas Emissions and Energy Consumption*, includes the analysis of both the project and cumulative effects. The Proposed Action 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 construction equipment, and distances traveled. However, the Proposed Action and the related projects that would generate GHG emissions in excess of threshold levels would implement the mitigation measures set forth in their respective CEQA/NEPA documents to reduce emissions and/or purchase carbon offsets. Furthermore, the Proposed Action would not exceed the Council on Environmental Quality's GHG threshold guidance levels and the Proposed Action would be consistent with Statewide climate change adaptation strategies. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to climate change or energy consumption.

4.2.10 Noise

None of the cumulative projects would located in the immediate vicinity of the Proposed Action. A cumulative effect might occur if construction activities associated with any of the related project(s) were to occur within 500 feet of the Proposed Action's construction activities, and also, 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. Furthermore, although any of the related cumulative projects could require construction that exceeds the respective local City or County noise ordinances, the Proposed Action would limit noise- generating activities to the hours when the City of Sacramento exempts construction noise. Therefore, the Proposed Action would not result in a 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, in other applicable local, State, or Federal standards, or exceeding the ambient background.

4.2.11 Recreation

The Proposed Action, along with the related projects, may result in temporary closure of recreational facilities, potential damage to recreational facilities, and temporary diminishment of recreational experiences during construction. Implementation of Mitigation Measures described in Section 3.12, *Recreation*, would reduce the Proposed Action's effects to a less-than-significant level. Because of the temporary nature of the construction effects and the likelihood that any access restrictions or degradation of the quality of recreational experiences would last for approximately 3–7 months in any location, the Proposed Action's effects on local recreation are not anticipated to overlap with effects of other related cumulative project. Consequently, cumulative effects related to recreation resources would be less than significant, and the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to short-term temporary changes in recreational opportunities during project construction activities.

4.2.12 Public Utilities and Service Systems

The Proposed Action, and future ARCF projects along the American River and Sacramento River, and all of the other related cumulative projects, could temporarily disrupt utility service as a result of inadvertent damage to existing utility equipment, facilities, and infrastructure. However, any utility and service system effects would be geographically isolated, short in duration, and occur on a project-by-project basis. Thus, these disruptions would not combine to form cumulative effects. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to potential disruption of utility services.

Temporary construction activities associated with the Proposed Action and related projects in the Sacramento Region would generate organic and non-organic solid waste. Waste material that is not suitable for disposal on-site would likely be disposed of in

Kiefer or the L and D Landfills. Both landfills currently provide solid waste disposal services to municipal and commercial customers and provide construction demolition and debris disposal in Sacramento County. Both landfills have sufficient permitted capacity to accommodate solid waste disposal needs for Sacramento County, including the disposal needs of the Proposed Action and the related cumulative projects. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to increases in solid waste generation.

4.2.13 Hazards and Hazardous Materials

Implementation of the Proposed Action and the related projects would include handling small quantities of hazardous materials used in construction equipment (e.g., fuels, oils, lubricants) and during construction activities. The storage, use, disposal, and transport of hazardous materials are extensively regulated by various Federal, State, and local agencies. Permits are required for the use, handling, and storage of these materials, and compliance with appropriate regulatory agency standards agencies is also required to avoid releases of hazardous waste. Construction companies that handle hazardous substances for the Proposed Action and all of the related projects are required by law to implement and comply with these existing regulations. Furthermore, any effect that might occur would be localized to the area where the materials are being used and would not be additive to other hazardous materials-related effects associated with the Project Area. None of the materials would be acutely hazardous, and they would not be used in quantities that pose a hazard to schools within 0.25 mile of construction sites. Thus, the project would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to the potential for accidental spills of materials used during construction activities or handling of hazardous materials within 0.25 mile of a school.

Project implementation could result in exposure to existing hazardous materials sites or from accidental rupture of petroleum or natural gas pipelines during construction activities. It is unknown whether any of the related project sites contain existing hazards materials. However, Mitigation Measures identified in Section 3.14, *Hazards and Hazardous Materials*, would minimize potential exposure to unknown hazards and hazardous materials during implementation of the Proposed Action. Therefore, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to existing hazardous materials.

Wildland fire represents a hazard particularly during the hot, dry summer and fall in the Central Valley. Most of the related projects, including future levee and development projects, would be implemented in urbanized areas, similar to the Proposed Action, with a relatively low risk of wildland fire. Therefore, there would be no significant cumulative impact related to wildland fire risk, and the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect related to wildland fire hazards.

4.3 Growth-Inducing Effects

Because the Proposed Action would not involve construction of housing, the action would not directly induce growth. Proposed Action-related construction activities would generate temporary and short-term employment, but the construction jobs would be filled from the existing local employment pool and would not indirectly result in a population increase or induce growth by creating permanent new jobs. Furthermore, the project would not involve constructing businesses or extending roadways or other infrastructure that could indirectly induce population growth. Consequently, the Proposed Action would not induce growth leading to changes in land use patterns, population densities, or related impacts on environmental resources.

Levee improvements would benefit areas identified for future growth anticipated in the vicinity of the American River in the City of Sacramento and Sacramento County. Local land use decisions are within the jurisdiction of the City of Sacramento and Sacramento County, both of which have adopted general plans consistent with State law. The City of Sacramento 2035 General Plan (City of Sacramento 2015) and currently planned 2040 General Plan provide an overall framework for growth and development in the City. The City General Plan identified few areas as "New Growth Areas" throughout the City boundaries and in "Special Study Areas." The Sacramento County General Plan 2030 (Sacramento County 2011) and current proposed amendments to the general plan provide a framework for development in the County, including areas identified for future growth that benefit from the levee system along the American River.

The levee improvements would increase the levee's resistance to erosion, provide better overall levee stability and reliability, and provide additional flood protection for growth anticipated in the City's General Plan. Growth throughout the Project Area has already been planned for as part of the City of Sacramento 2035 General Plan (City of Sacramento 2015). The Proposed Action would not allow additional growth to occur other than the degree of growth that has already been planned and approved, 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 of Sacramento as already evaluated and planned for in the City General Plan and, therefore, would not have an indirect effect on growth. The Proposed Action 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 would not directly or indirectly support development in the base floodplain.

4.4 Irreversible and Irretrievable Commitment of Resources

The discussion of irreversible and irretrievable commitments of resources in the 2016 ARCF GRR Final EIS/EIR adequately describes the effects of the Proposed Action.

CHAPTER 5
Compliance with Federal and State Laws and Regulations

5.1 Federal Laws and Regulations

5.1.1 Clean Air Act of 1970

The Federal Clean Air Act (CAA) of 1970, as amended (42 USC 7401 et seq.) requires the U.S. Environmental Protection Agency (EPA) to establish national ambient air quality standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also requires each state to prepare an air quality control plan, referred to as a State Implementation Plan.

An analysis of air quality effects of the Proposed Action is presented in Section 3.9, *Air Quality*. The Proposed Action is not expected to violate any Federal air quality standards. Although the NOx emissions of the ARCF 16 project as a whole are expected to exceed the EPA's General Conformity *de minimis* thresholds during several of the ARCF 16 project's construction years, including 2022, and 2023, USACE expects to purchase offsets for NOx emissions from SMAQMD. The CAA requires that EPA set emissions standards for a range of pollution sources. Specifically, EPA and the National Highway Traffic Safety Administration (NHTSA) regulate emissions from on-road vehicles include automobiles and light-duty trucks. In 2012, EPA and NHSTA established the Corporate Average Fuel Economy (CAFE) standards for automobiles and light-duty trucks for model years 2014 and beyond (77 *Federal Register* [FR] 62624). Under the original iteration of the CAFE standards, fuel economy would be raised to the equivalent of 54.6 miles per gallon by 2025 (77 FR 62630).

On April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, the 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 2018).

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.

5.1.2 Community Right-to-Know Act of 1986

The Community Right-to-Know Act 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 in the event that such materials are accidentally released.

5.1.3 Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards

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 U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. 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 below), the CAFE standards were revised for the first time in 30 years then later updated in 2012 and 2019.

5.1.4 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.

5.1.5 Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 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 CAFE standards, the Energy Independence and Security Act of 2007 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, 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 2018).

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.

5.1.6 Hazardous Materials Transportation Act

The Secretary of the U.S. Department of Transportation (DOT) receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act, as amended and codified in 49 USC 5101 et seq. DOT has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CFR).

5.1.7 Endangered Species Act of 1973

Pursuant to the Endangered Species Act (ESA), as amended (16 USC 1531 et seq.), 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. "Take" is defined under ESA Section 9 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under Federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. ESA Section 7 outlines procedures for Federal interagency cooperation to conserve Federally listed species and designated critical habitat. Section 7(a)(2) requires Federal agencies to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. A list of threatened and endangered species that may be affected by the Proposed Action was obtained from USFWS in 2019 (Appendix B-2). USACE formally consulted with USFWS on the ARCF Project and received a Biological Opinion (BO) on September 11, 2015 (08ESMF00-2014-F-0518). USACE conducted reinitiations for this BO with USFWS in June 2017 and May 2019. The Proposed Action is an element of the ARCF Project. USACE formally consulted with NMFS on the ARCF Project and received a Biological Opinion on September 9, 2015. USACE is required to reinitiate formal consultation with USFWS and/or NMFS if effects on listed species would vary from what was provided at the time of formal consultation. USACE continues to update USFWS and NMFS on impacts and mitigation for covered species associated with implementing ARCF Project actions, and USACE would reinitiate consultation with USFWS and/or NMFS if completed design documents and specifications for associated ARCF projects provide more detailed data concerning anticipated adverse effects on listed species. Consultation with USFWS and NMFS was ongoing at the time of publication of this document.

5.1.8 Executive Order 11988, Floodplain Management

Executive Order (EO) 11988 directs all Federal agencies approving or implementing a project to avoid, to the extent possible, the long- and short-term adverse effects associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Guidelines for implementing the EO include an eight-step process that agencies should carry out as part of their decision-making on projects that have potential effects on or within the floodplain. The decision-making process required in Section 2(a) of EO 11988 is reflected in the eight steps that are listed below, along with information on how each step is being addressed for the project.

1. Determine if a proposed action is in the base floodplain (that area which has a 1 percent or greater chance of flooding in any given year (i.e., the 100-year floodplain). The project includes levee improvements, some of which form the boundary of the base (FEMA's 100-year) floodplain.

2. Conduct early public review, including public notice. Public review is being accomplished through the NEPA Supplemental EA and the CEQA Supplemental EIR process; SAFCA previously conducted extensive public outreach for an earlier iteration of the project prior to authorization by Congress.

3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain. Alternatives to the Proposed Action are discussed in Chapter 2, "Alternatives."

4. Identify effects of the proposed action. This Supplemental EA/EIR analyzes the environmental effects potentially resulting from the project, per NEPA requirements. Effects of the Proposed Action are described in Chapter 3, "Affected Environment and Environmental Consequences." Effects are also being evaluated in compliance with the CWA, and other Federal and State environmental regulations.

5. Minimize threats to life and property and restore and preserve natural and beneficial floodplain values. The Proposed Action would reduce flood risk to life and property by ensuring the American River Levees at Sites 2-1, 2-2 and 2-3 meet the engineering standards associated with the National Flood Insurance Program (NFIP). The project includes mitigation to maintain or improve habitat values along the American River Levees at Sites 2-1, 2-2 and 2-3.

6. Reevaluate alternatives. USACE is conducting an extensive engineering review of SAFCA's initial designs for improvements to address through-and under-seepage hazards on the American River Levees at Sites 2-1, 2-2 and 2-3. The Proposed Action includes those portions of SAFCA's initial design which were initially reviewed and approved, in addition to several modifications that were developed as a result of USACE's reevaluation of the alternatives. The alternatives are also evaluated and may be refined through consultation with the resource agencies for compliance with CWA, and other project authorizations.

7. Present the findings and a public explanation. As part of the NEPA and CEQA process, the public would be able to review and comment on this Supplemental EA/EIR.

8. Implement the action. USACE intends to implement the Proposed Action in 2020, assuming receipt of all necessary approvals, clearances, permits, and permissions.

9. The project would mitigate flood risks by improving levees to meet engineering standards associated with the NFIP; it would not alter protection for the 100-year event, nor does it transfer any such risk to other areas. Because the project would not directly or indirectly support development in the base floodplain, it would comply with EO 11988.

5.1.9 Executive Order 11990, Protection of Wetlands

The purpose of EO 11990 is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." To meet these objectives, EO 11990 requires Federal agencies, in planning their actions, to consider

alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. EO 11990 applies to:

- acquisition, management, and disposition of Federal lands and facilities construction;
- improvement projects which are undertaken, financed, or assisted by Federal agencies; and
- Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.
- As discussed in Section 3.4, *Vegetation and Wildlife*, no wetlands are located within the footprint of the Proposed Action.

5.1.10 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

The purpose of EO 12898 is to identify and address the disproportionate placement of adverse environmental, economic, social, or health effects from Federal actions and policies on minority and/or low-income communities. EO 12898 requires that adverse effects on minority or low- income populations be taken into account during preparation of environmental and socioeconomic analyses of projects or programs that are proposed, funded, or licensed by Federal agencies. Section 2-2 of EO 12898 requires all Federal agencies to conduct programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color or national origin. Section 1-101 of EO 12898 requires Federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority and low-income populations. The Proposed Action would reduce the risk of flooding to existing residential, commercial, and industrial development protected by the American River Levees at Sites 2-1, 2-2 and 2-3. This benefit would accrue to all segments of the population in the Project Area and would have no disproportionately high adverse environmental effect on any minority or low-income population.

5.1.11 Executive Order 13112, Invasive Species

EO 13112 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. EO 13112 also calls for the restoration of native plants and tree species. Project construction activities have potential to introduce new invasive plants or spread existing invasive plants on the project site, but temporarily disturbed areas would be hydroseeded with a native seed mix for erosion protection and to prevent colonization of exotic vegetation and mitigation measures

would include planting of native riparian species. Additional information is provided in Section 3.4, *Vegetation and Wildlife*.

5.1.12 Farmland Protection Policy Act

The Farmland Protection Policy Act (7 USC 4201 et seq.) is intended to minimize the effect of Federal programs with respect to the conversion of farmland to nonagricultural uses. It ensures that, to the extent possible, Federal programs are administered to be compatible with State, local, and private programs and policies to protect farmland. The Natural Resources Conservation Service is the agency primarily responsible for implementing the Farmland Protection Policy Act. There are no prime farmlands in the levee improvement area.

5.1.13 Clean Water Act

EPA is the lead Federal agency responsible for water quality management. The CWA of 1972, as amended (33 USC 1251 et seq.), is the primary Federal law that governs and authorizes water quality control activities by EPA, as well as the State. The Proposed Action would involve the placement of fill materials or construction within surface waters, local waterways, or any other Waters of the United States and, therefore, would comply with permit requirements of Sections 401 and 404 of the Clean Water Act. USACE prepared a Section 404(b)(1) Evaluation (Appendix G). At the time of publication of this document, USACE was preparing an application for a Water Quality Certification to the Central Valley Regional Water Quality Control Board. Prior to construction, the contractor will be required to obtain a NPDES permit for potential effects on stormwater discharge, including preparation of a SWPPP. With the implementation of these permits, the Proposed Action would be in compliance with the Clean Water Act.

5.1.14 Fish and Wildlife Coordination Act of 1958

The Fish and Wildlife Coordination Act of 1958, as amended (16 USC 661 et seq.), 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. It requires that the views of USFWS, NMFS, and the applicable State fish and wildlife agency (CDFW) be considered when effects are evaluated and mitigation needs are determined. In 2015, during preparation of the ARCF GRR Final EIS/EIR, 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 final ARCF GRR Final EIS/EIR. The Proposed Action would therefore be in compliance with this act.

5.1.15 Magnuson-Stevens Fishery Conservation and Management Act

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 essential fish habitat. The Proposed Action would therefore be in compliance with this act.

5.1.16 Migratory Bird Treaty Act of 1936

The Migratory Bird Treaty Act (MBTA) of 1936, as amended (16 USC 703 et seq.), implements domestically a series of international treaties 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 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. The Proposed Action incorporates mitigation measures that minimize the potential for the take of migratory birds as a consequence of project construction, as discussed in Section 3.4, *Vegetation and Wildlife*.

5.1.17 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 preferred alternative would bring the American River South Basin and American River North Basin to Annual Exceedance Probabilities of 1 in 147 and 1 in 256, respectively.

5.1.18 National Historic Preservation Act of 1966

Section 106 of the NHPA and its implementing regulations (36 CFR 800, as amended in 2004) require Federal agencies to consider the potential effects of their proposed undertakings on historic properties. Historic properties are cultural resources that are listed on, or are eligible for listing on, the NRHP (36 CFR 800.16[l]). Undertakings include activities directly carried out, funded, or permitted by Federal agencies. Federal agencies must also allow the Advisory Council on Historic Preservation to comment on the proposed undertaking and its potential effects on historic properties.

Because the ARCF 2016 Project is being implemented in phases, and because implementation of phases of the ARCF 2016 Project may have an effect on Historic Properties, USACE has consulted with the SHPO and other parties and as a result has executed a PA. The PA establishes the process USACE would follow for compliance 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 to consider resources listed on or eligible for listing on the NRHP, as discussed in Section 3.7, *Cultural Resources*. Determinations of the specific mitigation measures to be implemented to reduce impacts on known Historic Properties would be made by USACE, in consultation with SHPO and other PA Parties, as required by the PA and as described in detail in the HPMP for the ARCF Project. Specific mitigation measures that are consistent with the PA and the HPMP are also identified in Section 3.6 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 Americans who attach religious or cultural significance to Historic Properties that may be affected by the proposed undertaking. A detailed description of consultation with Native Americans is provided under *Native American Consultation* in Section 3.7. In accordance with the PA, USACE will consult with the SHPO, requesting concurrence on the delineation of the APE, on the adequacy of inventory methods, and on the findings of the cultural investigations. The Proposed Action would comply with the National Historic Preservation Act.

5.1.19 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Federal, State, regional, and local government agencies, and others receiving Federal financial assistance for public programs and projects that require the acquisition of real property, must comply with the policies and provisions set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended in 1987 (42 USC 4601 et seq.), and its implementing regulation, 49 CFR Part 24. Relocation advisory services, moving costs reimbursement, replacement housing, and reimbursement for related expenses and rights of appeal are provided in the Uniform Act. All or portions of some parcels within the project footprint would need to be acquired for

project construction. All property acquisition would be made in compliance with the Uniform Act.

5.1.20 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (16 USC 1217 et seq.) 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 ARCF project is consistent with the land use management, flood risk reduction, and levee protection policies of the American River Parkway Plan, the management plan for the Wild and Scenic Rivers Act. These policies require that flood management agencies maintain and improve the existing flood control system, and manage vegetation in the Parkway to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood risk reduction. USACE is in compliance with the Wild and Scenic Rivers Act by coordinating with the National Park Service to determine whether the Proposed Action would result in a direct and adverse effect on the Lower American River's free-flowing nature, water quality, anadromous fish Outstandingly Remarkable Value, or recreational Outstandingly Remarkable Value.

5.2 State Laws, Regulations, and Policies

5.2.1 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.

5.2.2 Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to AB 2076 (Chapter 936, Statutes of 2000), 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.

5.2.3 California Clean Air Act of 1988

Section 3.9 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.

SMAQMD has local jurisdiction over the Project Area. The analysis in Section 3.9 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." The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Friant Ranch development site is in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for multiple of the NAAQS and CAAQS, including ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

The Court ruled that the air quality analysis failed to adequately disclose the nature and magnitude of long-term air quality health impacts from emissions of criteria air pollutants and precursors "in sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises." The Court noted that the air quality analysis did not discuss the foreseeable adverse health effects of project-generated emissions on Fresno County's likelihood of exceeding the NAAQS and CAAQS for criteria air pollutants, nor did it explain why it was not "scientifically possible" to determine such a connection.

The Court concluded that "because the EIR as written makes it impossible for the public to translate the bare numbers provided into adverse health impacts or to understand why such translation is not possible at this time," the EIR's discussion of air quality impacts was inadequate.

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 order.

5.2.4 California Environmental Quality Act of 1970

The CVFPB, as the non-Federal sponsor and CEQA lead agency, would undertake activities to ensure compliance with CEQA. CEQA requires full disclosure of the environmental effects, potential mitigation, and environmental compliance of the project. Certification of the Final Supplemental EA/EIR by the CVFPB would provide full compliance with the requirements of CEQA.

5.2.5 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.

5.2.6 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 3.6 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.

5.2.7 California Fish and Game Code Sections 3503 and 3513

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. With implementation of mitigation measures described in Section 3.6, activities associated with the proposed project are not anticipated to adversely affect nesting birds, raptors, or their 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.

As a result of AB 454, this section will become inoperative on January 20, 2025, and will be repealed as of January 1, 2026. As of January 20, 2025, Section 3513 will state that it is unlawful to take or possess any migratory nongame bird as designated in the Federal MBTA (16 USC 703 et seq.), or any part of a migratory nongame bird described in Section 3513, except as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the MBTA.

5.2.8 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 regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act 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.

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.

Code of Federal Regulations Title 29 (OSHA) and California Code of Regulations Title 8 (Cal/OSHA)

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a Federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in CFR Title 29. Cal/OSHA standards are generally more stringent than Federal regulations. Cal/OSHA regulations (8 CCR) for the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. State laws, like Federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices.

5.2.9 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).

5.2.10 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. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. 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. With implementation of mitigation measures described in Section 3.4, the Proposed Action would have no effect on waters of the United States or waters of the State.

5.2.11 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.

5.2.12 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.

5.2.13 Statewide Greenhouse Gas Emissions Targets and the Climate Change Scoping Plan

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 (Assembly Bill [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 Climate Change Scoping Plan (2017 Scoping Plan), 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 Climate Change 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.

5.2.14 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.

5.2.15 County of Sacramento Tree Ordinance and Tree Preservation Ordinance

The Sacramento County Tree Ordinance (Chapter 19.04 of Title 19 of the County Code) establishes guidelines for the planting, removal, and protection of public trees and specially protected trees, such as heritage or landmark trees, in Sacramento County. A "public tree" is defined by the ordinance as "a tree or shrub planted or maintained, or both, by the County on an easement, planting easement, street, county park or public premises." A "heritage tree" is defined by the ordinance as "a California oak tree growing on any land (in unincorporated area) of Sacramento County, including privately owned land, with a trunk sixty inches or greater in girth measured four and one-half feet above the ground." A "landmark tree" is defined by the ordinance as "an especially prominent or stately tree on any land (in the unincorporated area) in Sacramento County, including privately owned land." The disturbance of any public tree without a permit is prohibited and special protection of landmark and heritage trees is required.

The Sacramento County Tree Preservation Ordinance (Chapter 19.12 of Title 19 of the County Code) establishes measures to preserve and protect native oak trees within the designated urban area. A "native oak tree" is defined by the ordinance as any valley oak (*Quercus lobata*), interior live oak (*Q. wislizenii*), blue oak (*Q. douglasii*), or oracle oak (*Q. morehus*) having at least one trunk of 6 inches or more in diameter measured 4.5 feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of 10 inches or more measured 4.5 feet above the ground.

The ordinance prohibits native oak tree removal or ground-disturbance activities within the dripline of a native oak tree without a tree permit, unless authorized as a condition of a discretionary project such as a subdivision map, rezone, or conditional use permit. The ordinance establishes decision criteria for ascertaining whether or not oak tree removal should be permitted, along with development control measures intended to mitigate damage to oak trees caused by land development. The ordinance also establishes a Tree Preservation Fund to be used for tree planting and preservation programs and public education programs regarding trees.

CHAPTER 6

Coordination and Review of the Draft Supplemental EA/EIR

The Draft Supplemental EA/EIR was circulated for 45 days (June 5, 2020 to July 20, 2020) to agencies, organizations, and individuals known to have a special interest in the project. Copies of the Draft Supplemental EA/EIR are posted on the USACE and CVFPB websites, and were made available for viewing at local public libraries, or provided by mail upon request. This project was coordinated with all the appropriate Federal, State, and local governmental agencies including USFWS, SHPO, CDFW, and DWR prior to the finalization of this document. Appendix J summarizes the public involvement efforts by USACE, CVFPB, and SAFCA conducted on behalf of the Proposed Action.

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CHAPTER 7
Report Preparers and Reviewers

This Supplemental EA/EIR was prepared by Environmental Science Associates at the direction of the USACE Sacramento District and CVFPB, with assistance from SAFCA.

The following is a list of the individuals who prepared the Supplemental EA/EIR, provided important background materials, or provided engineering clarifications for the project description.

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