Public Draft
Initial Study/Proposed Mitigated Negative Declaration

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Prepared for:

Sacramento Area Flood Control Agency

AECOM

April 1, 2015

Public Draft
Initial Study/Proposed Mitigated Negative Declaration

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Prepared for:

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April 1, 2015

Sacramento
Area Flood
Control
Agency

Date: April 1, 2015
To: Interested Parties
From: Sacramento Area Flood Control Agency
Subject: Notice of Availability and Intent to Consider Adoption of a Mitigated Negative Declaration for the Site 18A Culvert Replacement and Fish Passage Enhancement Project

Enclosed for your review is an Initial Study/proposed Mitigated Negative Declaration (IS/MND) evaluating the potential environmental effects of the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project (proposed project), which is located in Sacramento, California, within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sacramento County. The Sacramento Area Flood Control Agency (SAFCA) has prepared this IS/MND in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.

SAFCA proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek. The proposed project would involve replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.

The IS/MND identifies potentially significant impacts related to the proposed project. All impacts are reduced to less-than-significant levels with implementation of mitigation measures identified in the Initial Study.

The IS/MND is being circulated for public review and comment for a 30-day period beginning on April 2, 2015 and ending on May 1, 2015. The IS/MND may be reviewed at SAFCA's Web site, www.safca.org/Protection/Environmental_Public_Review.html.

Please send written comments on the IS/MND to John A. Bassett, Sacramento Area Flood Control Agency, 1007 7th Street, 7th Floor, Sacramento, CA 95814, fax (916) 874-8289. Comments may also be sent via e-mail to bassettj@SacCounty.net. For e-mailed comments, please include the project title in the subject line, attach comments in MS Word format, and include the commenter's name and U.S. Postal Service mailing address. All written comments must be received by 5 p.m. on Thursday, April 30, 2015.

The SAFCA Board of Directors intends to consider adoption of the Mitigated Negative Declaration at its regularly scheduled board meeting on May 21, 2015, after 3:00 p.m., to be held at the Sacramento County Board of Supervisors' Chambers located at 700 H Street, Sacramento, CA 95814. This meeting will be open to the public.

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PROPOSED MITIGATED NEGATIVE DECLARATION

Project: Site 18A Culvert Replacement and Fish Passage Enhancement Project

Lead Agency: Sacramento Area Flood Control Agency

PROJECT DESCRIPTION

The Sacramento Area Flood Control Agency (SAFCA) proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek. This would be accomplished by replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and by modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.

FINDINGS

An Initial Study (IS) has been prepared to assess the project's potential effects on the environment and the significance of those effects. Based on the IS, it has been determined that the proposed project would not have any significant adverse effects on the physical environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have no impacts on agricultural and forestry resources, land use and planning, minerals, population and housing, and public services.

2. The proposed project would have less-than-significant impacts on aesthetics, air quality, cultural resources, greenhouse gas emissions, recreation, and utilities and service systems.

3. The proposed project would have potentially significant impacts on biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation/traffic, but mitigation measures are proposed to avoid or reduce these effects to less-than-significant levels.

Following are the mitigation measures that would be implemented by SAFCA to avoid or minimize environmental impacts. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to a less-than-significant level.

Mitigation Measure BIO-1: Conduct Pre-construction Survey for Woolly Rose-Mallow and Implement Impact Avoidance and Minimization Measures.

SAFCA shall implement the following measures to avoid and minimize adverse impacts to woolly rose-mallow.

a) Before construction activities begin, a focused survey will be conducted by a qualified botanist for woolly rose-mallow shrubs that may be present in or within 50 feet of areas where ground disturbance would occur. To the extent feasible, depending on timing of project implementation, surveys will be conducted during the blooming period for this species (June–September).

b) If woolly rose-mallow is detected, areas where the species occurs will be fenced for complete avoidance during project implementation, to the extent feasible.

c) If woolly rose-mallow is present in areas where disturbance cannot be avoided, a qualified botanist will assess the feasibility of salvaging and transplanting individuals as part of the revegetation component of the project. If such actions are deemed feasible, they will be implemented under the direction of a qualified botanist and in coordination with California Department of Fish and Wildlife (CDFW).

Timing: Before construction activities begin and during revegetation.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure BIO-2: Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek.

SAFCA shall implement the following measures to avoid and minimize disturbance to special-status fish in NEMDC/Steelhead Creek.

a) No grading work within the existing floodway will occur during the designated flood season (i.e., November 1 to April 15), and work will not begin until evaluation of upstream conditions indicate that inundation of the construction area is unlikely to occur.

b) A worker awareness training program will be conducted for construction crews before the start of construction activities and as needed when new personnel begin work on the project. The program will include a brief overview of sensitive fisheries and aquatic resources (including riparian habitat to be preserved) on the project site, measures to minimize impacts on those resources, and conditions of relevant regulatory permits.

c) Any in-water construction activities (though not currently anticipated) will be conducted during months when special-status fish species/sensitive life stages are least likely to be present or less susceptible to disturbance (e.g., July 1 to October 31).

d) All riparian vegetation that is not specified to be impacted within the grading area will be identified and fenced using orange construction fencing or similar materials. Sensitive habitat information will be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.

Timing: Before, during, and as needed after construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure BIO-3: Conduct Pre-construction Surveys and Minimize Disturbance and Potential Loss of Active Nests of Special-Status Birds.

SAFCA shall implement the following measures to minimize disturbance and potential loss of active nests of special-status birds.

a) Focused surveys for Swainson's hawk and other nesting raptors will be conducted by a qualified biologist before on-site project activities begin. To the extent feasible, surveys for Swainson's hawk will follow guidelines provided in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). A minimum of one survey will be conducted no more than 14 days before beginning project activities that are conducted during the nesting season (March 15–August 31). Surveys for Swainson's hawk nests will include all accessible areas of suitable nesting habitat located within 0.25 mile of areas subject to project disturbance, and surveys for other raptors will include accessible suitable nesting habitat within 500 feet of project disturbance.

b) Surveys for Modesto song sparrow will include suitable habitat east of Northgate Boulevard and within up to 200 feet of areas of project disturbance, depending on the disturbance level. Surveys will be conducted within 7 days before on-site project activities begin in a given area during the migratory bird nesting season (March 1–August 31).

c) If active nests are found, appropriate buffers will be established and maintained around the nest sites to avoid nest failure resulting from project activities. The appropriate size and shape of the buffers will be determined by a qualified biologist and may vary depending on the species, nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity will begin within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure BIO-4: Avoid and Minimize Disturbance of Riparian Vegetation and Develop Restoration Plan to Compensate for Tree Loss.

SAFCA shall implement the following measures to avoid and minimize disturbance of riparian vegetation and trees.

a) If canopy and/or root pruning, cabling, or other corrective measures for preserved trees are necessary, such measures will be conducted as specified by a Certified Arborist and will conform to the pruning standards of the International Society of Arboriculture.

b) Ground disturbance activity, equipment, and vehicles will not encroach within 1 foot of the drip line of trees to be preserved, to the extent feasible. The dripline area will be protected with high visibility fencing or tape before any ground disturbance or movement or storage of heavy equipment and other vehicles occurs. All fencing/tape will be removed following construction and before revegetation plantings are installed.

c) Excavating within a distance of half the drip line beyond the drip line will be avoided whenever practicable. If necessary, any authorized fill or excavation within this area will be supervised by a Certified Arborist.

d) To prevent root tearing and mangling by heavy equipment, hand digging will be conducted around roots in the vicinity of major trees to be preserved before pruning of roots greater than 2-inch diameter. Severed roots larger than 2 inches in diameter will be pruned or trimmed and covered with earth as soon as possible.

e) If construction activities other than excavation are required within the dripline of preserved trees, a 6-inch layer of mulch or shredded wood material will be laid on top of the soil to protect the soil and roots (3/4-inch plywood may be used if mulch is not feasible). Mulch and/or plywood will be removed after construction is complete.

f) Removal of protected trees and other riparian vegetation (e.g., shrubs) will be compensated by planting appropriate species as part of the revegetation component of the project. Replacement plantings will be provided in accordance with City and County ordinances. Other riparian vegetation will be compensated at a 1:1 replacement ratio, based on the acreage removed. Revegetation efforts will be implemented as described in the restoration plan that has been prepared for the project. This will ensure adequate plantings of appropriate species are installed, maintained, and monitored to meet replacement requirements and compensate for removal of protected trees and other riparian vegetation.

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

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure GEO-1: Prepare and Implement a Grading and Erosion Control Plan.

a) Before earthmoving activities commence, SAFCA shall prepare and implement a grading and erosion control plan. The grading and erosion control plan will be prepared and implemented before on-site grading activities begin. The plan will be consistent with the State's National Pollutant Discharge Elimination System permit, and will include site-specific grading associated with culvert replacement and restoration activities.

b) The aforementioned plan will include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures; a description of measures designed to control dust and stabilize disturbed soils within the construction-site; and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment

control measures could include the use of berms, straw cover, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure HAZ-1: Prepare and Implement a Construction Fire Prevention Plan.

A fire prevention plan will be prepared and implemented by SAFCA or prepared by the construction contractor for review and approval by SAFCA in coordination with the appropriate emergency service and/or fire suppression agencies of the applicable local or State jurisdictions before the start of any construction activities. The plan will describe fire prevention and response methods, including fire precautions, requirements for spark arrestors on equipment, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. When heavy equipment is used for construction during the dry season, a water truck shall be maintained on the construction site. Materials and equipment required for implementation of the plan will be available on the construction site. Training will be provided to all construction personnel regarding fire safety, and all personnel will be made familiar with the contents of the plan before the start of construction activities.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure HYD-1: Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices.

a) During the development of improvement plans, SAFCA will consult with the Central Valley RWQCB and Sacramento County. The purpose of the consultation will be to acquire the regulatory approvals necessary to obtain a CWA Section 401 Water Quality Certification, and any other necessary waivers under the Porter-Cologne Water Quality Control Act.

b) SAFCA will also prepare and implement the appropriate storm water pollution prevention plan (SWPPP) or storm water management plan (SWMP) to prevent and control pollution and to minimize and control runoff and erosion. The SWPPP or SWMP will identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the best management practices (BMPs) that will be employed to control pollutant discharge. Construction techniques that will be identified and implemented to reduce the potential for runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP or SWMP will include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking and dust generation by construction

equipment. No disturbance of surfaces will occur between October 15 and April 15 without erosion control measures in place.

c) The SWPPP or SWMP will also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and will identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP or SWMP will also identify emergency procedures for responding to spills.

d) The BMPs presented in either document shall be clearly identified and maintained in good working condition, with sufficient backup stock on-site during all site work and construction activities. The construction contractor will retain a copy of the approved SWPPP or SWMP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the Central Valley RWQCB, if necessary.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure NOI-1: Implement Measures to Reduce Construction Noise Effects.

SAFCA shall require that its engineering design consultants and construction contractors implement the following measures to avoid and minimize construction traffic noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control.

To the extent feasible and practicable, the primary construction contractors shall employ noise-reducing construction practices such that noise from construction complies with applicable noise-level rules, regulations, and ordinances that apply to the work, including the noise standards established for non-transportation noise sources by the applicable agencies (City of Sacramento), depending on the jurisdictional location of the affected receptor(s). Measures that shall be used to limit noise shall include the following:

a) Prohibit use of materials and equipment deliveries prior to 7 a.m. and after 6 p.m., Monday through Saturday; and prior to 9 a.m. and after 6 p.m., on Sunday.

b) Establish and enforce construction site and haul road speed limits.

c) Route construction-related truck traffic along roadways that will cause the least disturbance to residents.

d) Use high-grade engine exhaust silencers and engine-casing sound insulation.

e) Restrict the use of bells, whistles, alarms, and horns to safety-warning purposes.

Timing: During construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure TRA-1: Repair Damaged Roadways and Bike Trails Following Construction.

Following completion of construction, SAFCA, its engineering design consultants, or its construction contractors will assess and repair any project-related damage to roadways and paved bicycle/pedestrian paths that were used during construction, including all project-related potholes, fractures, or other damages.

Timing: Following completion of the culvert replacement and swale modifications.

Responsibility: Sacramento Area Flood Control Agency.

ADOPTION OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION AND APPROVAL OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Certification by Those Responsible for Preparation of This Document. The Sacramento Area Flood Control Agency is responsible for the preparation of this Mitigated Negative Declaration and the incorporated Initial Study. I believe this document meets the requirements of the California Environmental Quality Act and provides an accurate description of the proposed project, and that the lead agency has the means and commitment to implement the project design measures that will assure the project does not have any significant, adverse effects on the physical environment. I recommend approval of this document.

_____ _____

Richard M. Johnson, Executive Director
Sacramento Area Flood Control Agency

Date

*(*To be signed upon completion of the public review process and preparation of a final project approval package including responses to comment, if any, on the environmental document and any necessary modifications to project design measures.)*

Approval of the Project by the Lead Agency: To meet Section 21082.1 of the California Environmental Quality Act, Sacramento Area Flood Control Agency has independently reviewed and analyzed the Initial Study and mitigated negative declaration for the proposed project and finds that the Initial Study and Mitigated Negative Declaration reflect the independent judgment of the Sacramento Area Flood Control Agency. The lead agency finds that the project design features will be implemented as stated in the Mitigated Negative Declaration.

I hereby attest that the Board of Directors of the Sacramento Area Flood Control Agency has approved this proposed project:

_____ _____

Richard M. Johnson, Executive Director
Sacramento Area Flood Control Agency

Date

INITIAL STUDY

Site 18A Culvert Replacement and Fish Passage Enhancement Project

1. Project Title	Site 18A Culvert Replacement and Fish Passage Enhancement Project
2. Lead Agency Name and Address	Sacramento Area Flood Control Agency 1007 7th Street, 7th Floor Sacramento, CA 95814
3. Contact Person and Phone Number	John A. Bassett Sacramento Area Flood Control Agency 1007 7th Street. 7th Floor Sacramento, CA 95814 Fax: (916) 874-8289 E-mail: bassettj@SacCounty.net
4. Project Location	The project is located south of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, north of Del Paso Boulevard and east of Northgate Boulevard, approximately 1/4 mile east of Camp Pollock within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sacramento County, California
5. Project Sponsor's Name	Sacramento Area Flood Control Agency
6. General Plan Designation	Recreation/Waterway
7. Zoning	American River Parkway – Floodplain Zone
8. Description of Project	SAFCA proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to NEMDC/Steelhead Creek. This would be accomplished by replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and by modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.
9. Surrounding Land Uses and Setting	Industrial, residential, and recreation. See "Environmental Setting" discussion under each issue area in Chapter 3, "Environmental Checklist."
10. Other Public Agencies Whose Approval May Be Required	U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service, California Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, Central Valley Flood Protection Board, Sacramento Metropolitan Air Quality Management District, and Sacramento County.

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ACRONYMS AND OTHER ABBREVIATIONS

AB	Assembly Bill
AQAP	air quality attainment plan
ARB	California Air Resources Board
ARP-F	American River Parkway-Floodplain
Basin Plan	*Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin*
Bay-Delta	San Francisco Bay/Sacramento–San Joaquin Delta
bgs	below ground surface
BMP	best management practice
CAA	Federal Clean Air Act
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CRPR	California Rare Plant Rank
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
cy	cubic yards
dB	decibels
dBA	A-weighted decibels
dbh	diameter at breast height
DOC	California Department of Conservation
DOF	California Department of Finance
DPS	distinct population segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
ESU	evolutionarily significant unit
FEIR	Final Environmental Impact Report
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHGs	greenhouse gases
HCP	Habitat Conservation Plan
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
IS	Initial Study
ITE	Institute of Transportation Engineers

Ksat	saturated hydraulic conductivity
lbs/day	pounds per day
lbs/acre	pounds per acre
LDL	Larson Davis Laboratories
L_{dn}	day-night average level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum instantaneous sound level
LOS	Level of Service
LRA	Local Responsibility Areas
LUST	leaking underground storage tank
M	magnitude
mm/yr	millimeters per year
mph	miles per hour
MRZ	Mineral Resource Zone
MT CO_2e	metric tons carbon dioxide equivalent
N/A	not available
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NALP	North Area Local Project
NCIC	North Central Information Center
NEMDC	Natomas East Main Drainage Canal
NLIP	Natomas Levee Improvement Program
NMFS	National Marine Fisheries Service
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OEHHA	Office of Environmental Health Hazard Assessment
PCC	Portland cement concrete
PCE	passenger car equivalent
PGCC	Pleasant Grove Creek Canal
PM	particulate matter
$PM_{2.5}$	particulate matter equal to or less than 2.5 micrometers in diameter
PM_{10}	particulate matter equal to or less than 10 micrometers in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPV	peak particle velocity
PRC	California Public Resources Code
proposed project	Site 18A Culvert Replacement and Fish Passage Enhancement Project
RD	Reclamation District
RMS	root-mean-square
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SACRT	Sacramento Regional Transit
SAFCA	Sacramento Area Flood Control Agency
SEIR	supplemental environmental impact report
SEL	sound exposure level
SFD	Sacramento Fire Department
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SPD	Sacramento Police Department
SRA	shaded riverine aquatic

SVAB	Sacramento Valley Air Basin
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels

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1 INTRODUCTION

The Sacramento Area Flood Control Agency (SAFCA) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) to address the potentially significant environmental impacts of the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project (proposed project) in Sacramento, California. SAFCA is the lead agency under CEQA.

This document includes:

- an IS (Initial Study) to satisfy CEQA requirements,
- a proposed MND to satisfy CEQA requirements, and
- a Notice of Availability and intent to adopt an IS/MND for the proposed project.
- After the required public review of this document is complete, the SAFCA Board of Directors will consider adopting the proposed MND and a Mitigation Monitoring and Reporting Program, and will decide whether to proceed with the proposed project.

1.1 PURPOSE OF THE INITIAL STUDY

This document is an IS/MND prepared in accordance with CEQA (California Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations [CCR]). The purpose of this IS is to (1) determine whether proposed project implementation would result in potentially significant or significant impacts on the physical environment; and (2) incorporate mitigation measures into the proposed project design, as necessary, to eliminate the proposed project's potentially significant or significant project impacts or reduce them to a less- than-significant level. An MND is prepared if the IS identified potentially significant impacts, but: (1) Revisions in the proposed project plans or proposals mitigate the impacts to a point where clearly no significant impacts would occur; and (2) there is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a potentially significant or significant impact on the physical environment.

An IS presents environmental analysis and substantial evidence in support of its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. An IS is neither intended nor required to include the level of detail provided in an Environmental Impact Report (EIR).

CEQA requires that all State and local government agencies consider the potentially significant and significant environmental impacts of projects they propose to carry out or over which they have discretionary authority, before implementing or approving those projects. The public agency that has the principal responsibility for carrying out or approving a proposed project is the lead agency for CEQA compliance (State CEQA Guidelines, CCR Section 15367). SAFCA has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this IS/MND.

If there is substantial evidence (such as the findings of an IS) that a proposed project, either individually or cumulatively, may have a significant or potentially significant impact on the physical environment, the lead

agency must prepare an EIR (State CEQA Guidelines, CCR Section 15064[a]). If the IS concludes that impacts would be less than significant, or that mitigation measures committed to by the applicant (SAFCA) would clearly reduce impacts to a less-than-significant level, a Negative Declaration or MND can be prepared.

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

1.2 SUMMARY OF FINDINGS

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it was determined that:

The proposed project would result in no impacts on the following issue areas:

- Agricultural and Forestry Resources
- Land Use and Planning
- Minerals
- Population and Housing
- Public Services

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

- Aesthetics
- Air Quality
- Cultural Resources
- Greenhouse Gas Emissions
- Recreation
- Utilities and Service Systems

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

- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation/Traffic

1.3 DOCUMENT ORGANIZATION

This document is divided into the following sections:

Notice of Availability and Intent to Consider Adoption of a Proposed MND. The Notice of Availability and Intent to Consider Adoption of a Proposed MND provides notice to responsible and trustee agencies, interested

parties, and organizations of the availability of this IS and of SAFCA's intent to consider adopting an MND for the proposed project.

MND. The MND, which precedes the presentation of the IS analysis in this document, summarizes the environmental conclusions and identifies mitigation measures that would be implemented in conjunction with the proposed project.

Chapter 1, "Introduction." This chapter briefly summarizes the proposed project and describes the purpose of the IS/MND, summarizes findings, and describes the organization of this IS/MND.

Chapter 2, "Project Description." This chapter describes the project location and background, project need and objectives, project characteristics, construction activities, project operations, and discretionary actions and approvals that may be required.

Chapter 3, "Environmental Checklist." This chapter presents an analysis of environmental issues identified in the CEQA environmental checklist and determines whether project implementation would result in a beneficial impact, no impact, less-than-significant impact, less-than-significant impact with mitigation incorporated, potentially significant impact, or significant impact on the physical environment in each issue area. Should any impacts be determined to be potentially significant or significant, an EIR would be required. For this proposed project, however, mitigation measures have been incorporated as needed to reduce all potentially significant and significant impacts to a less-than-significant level.

Chapter 4, "References Cited." This chapter lists the references used in preparation of this IS/MND.

Chapter 5, "Report Preparers." This chapter identifies report preparers who contributed to the preparation of this document.

Chapter 6, "IS/MND Distribution." This chapter lists the people and agencies to whom this IS/MND will be distributed.

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2 PROJECT DESCRIPTION

This chapter describes the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project (proposed project). The project location and background are described along with project need and objectives, project characteristics, construction activities, project operations, and discretionary actions and approvals that may be required.

2.1 PROJECT LOCATION

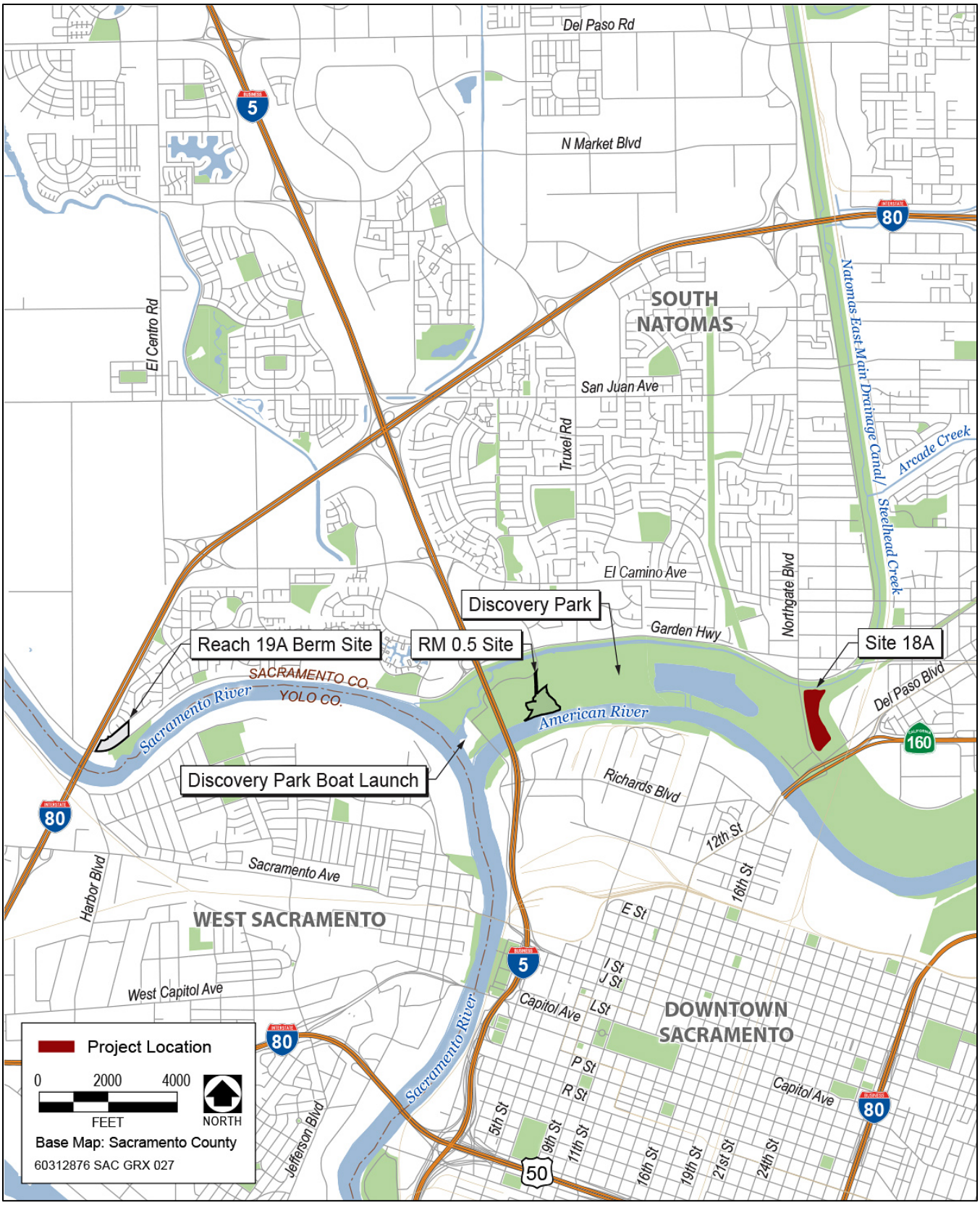
Site 18A is a seasonally flooded wetland and riparian habitat area that encompasses approximately 17 acres in the American River Parkway upstream from Discovery Park, immediately south of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek and directly east of Northgate Boulevard (**Exhibit 2-1, Exhibit 2-2**). NEMDC/ Steelhead Creek flows into the Sacramento River upstream of the American River confluence and the Discovery Park boat launch facility. The American River Parkway bike trail extends along the top of an earthen berm that surrounds and defines Site 18A.

2.2 PROJECT BACKGROUND AND NEED

Site 18A was used as a borrow site in 1996 to generate approximately 230,000 cubic yards (cy) of earthen fill material for the Sacramento Area Flood Control Agency's (SAFCA's) North Area Local Project (NALP) levee improvements. Following the 1996 excavation, the area was graded and planted by SAFCA to support a floodplain riparian and seasonal wetland habitat.

Water from NEMDC/Steelhead Creek flows passively into the Site 18A seasonal wetland through a relatively small (30-inch diameter) culvert located at the northwest corner of the basin. The culvert passes under the heavily used, paved American River Parkway bike trail and extends approximately170 feet from the basin to the left (south) bank of NEMDC/Steelhead Creek. During moderate to high flood stages in the Sacramento and Lower American Rivers, NEMDC/Steelhead Creek and the American River can backup and overflow into Site 18A and surrounding low areas, both through the culvert and by overtopping the low berm/bike trail embankment that surrounds the site (**Exhibit 2-2**). The floodplain habitat becomes most accessible to juvenile salmonids during these higher stage flood events when overtopping occurs. As the floodwaters recede and the basin drains, the invert elevation of the culvert and depressions within the interior swales cause shallow ponding to occur within the basin which can result in entrapment of juvenile salmonids and other fish. Because the outflow through the culvert is limited, it does not provide adequate attraction flows for fish to follow the receding flow path back to NEMDC/Steelhead Creek. As the floodwaters recede, juvenile Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss*), and other fish are potentially subject to stranding and are vulnerable to piscine, mammalian, and avian predation in the ponded areas in Site 18A.

During February and March 1999, Site 18A became flooded as described above due to a series of heavy storm events. When the water surface elevation subsequently declined, an opportunity was afforded to assess the extent of potential fish stranding, piscine predation, and habitat/flow conditions that may be required to trigger movement of juvenile salmonids from the ponded area (Jones and Stokes 1999). Beach seining resulted in the capture of over 3,000 predominantly fall-run juvenile Chinook salmon, however, 262 fish were positively identified as Federally listed winter-run (majority) and spring-run Chinook salmon. From mark-recapture sampling, over 50,000 juvenile Chinook salmon (all races) were estimated to have entered the basin and were temporarily stranded during this event.



Source: Adapted by AECOM in 2015

Exhibit 2-1. Site 18A Culvert Replacement and Fish Passage Enhancement Project Location

Source: Adapted by AECOM in 2015

Exhibit 2-2. Site 18A Culvert Replacement and Fish Passage Enhancement Project Site Map

Hoop net sampling of the outfall (culvert) during the draining of the basin indicated that movement of larger-sized (i.e., winter-run and spring-run) juvenile salmonids had commenced, but the fall-run juvenile salmonids appeared to prefer to remain in the rearing habitat provided within Site 18A rather than moving through the culvert, presumably because they had not undergone smoltification. The fall-run juveniles were likely rearing upstream in suitable habitat and were flushed downstream during high flows, rather than actively out-migrating. Subsequent regrading of the basin swales by SAFCA in late 1999 to allow for more complete drainage as floodwaters recede improved, but did not completely eliminate, the potential fish stranding and predation problem.

To further reduce the potential for fish stranding at Site 18A, SAFCA proposes to improve the exchange of flows into and out of the Site 18A seasonal wetland complex. SAFCA also proposes to modify the gradient of the interior swales and increase the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain to further reduce predation by piscivorous birds and increase rearing and feeding habitat for juvenile salmonids.

2.3 PROJECT OBJECTIVES

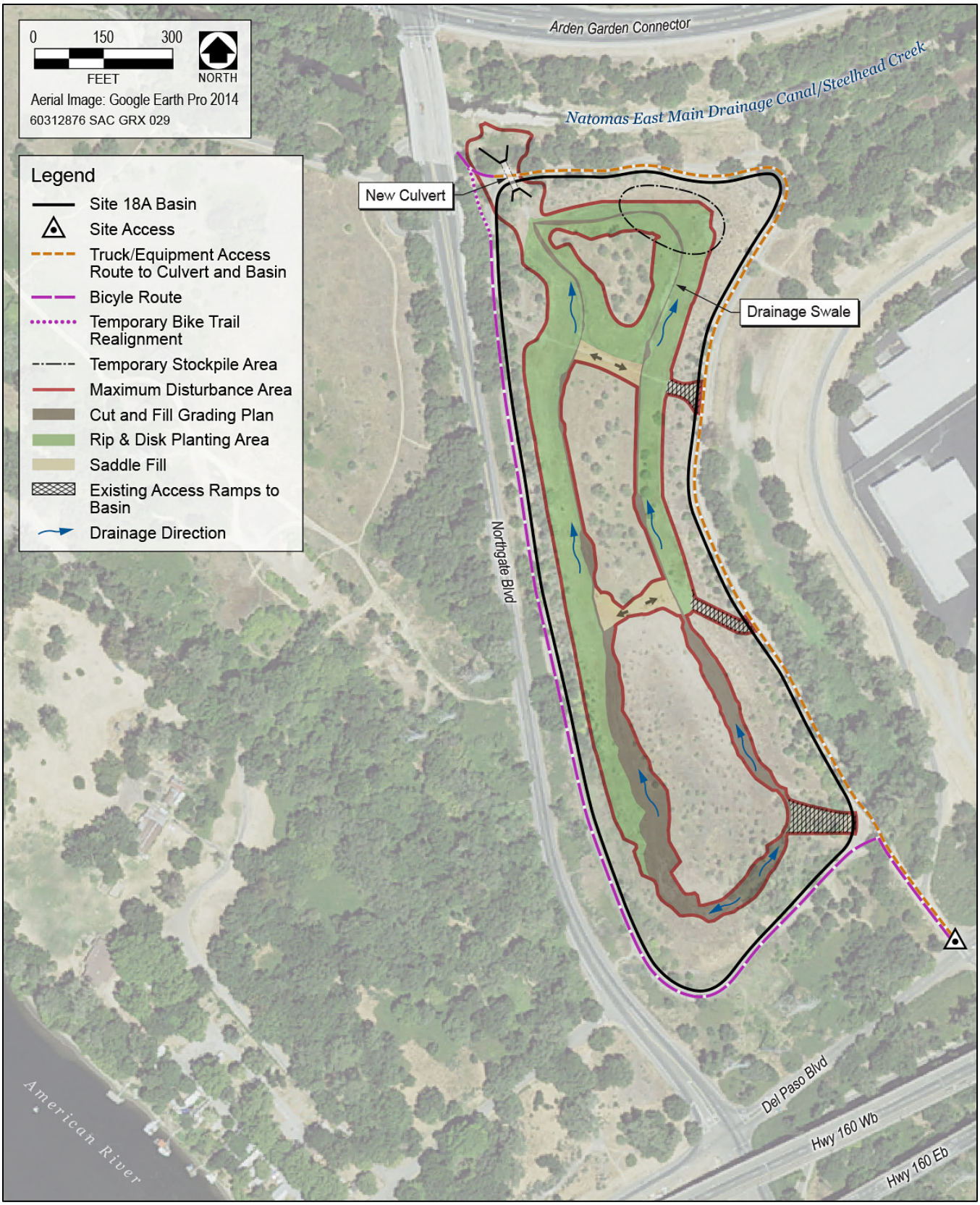
The primary objectives of SAFCA's proposed project are to:

- reduce the potential for fish stranding by improving drainage, flow path, and connectivity between Site 18A and NEMDC/Steelhead Creek;
- improve accessibility to floodplain rearing habitat; and
- enhance ecosystem function through improving habitat quality and diversity, including improvements to soil conditions to boost growth potential of riparian and seasonal wetland vegetation.

2.4 PROPOSED PROJECT

The proposed project would include replacing the existing culvert with a shortened and much wider and taller arched culvert; regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A; and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities (**Exhibit 2-3**). The overall culvert replacement and regrading of portions of the swale system would be designed to improve the frequency/periodicity, attraction, and exchange of flows into and out of the Site 18A seasonal wetland complex, thereby reducing the potential for fish stranding and facilitating juvenile salmonid outmigration. Habitat enhancement activities would focus on improving soil conditions to support revegetation of disturbed areas, and improving existing wetland and riparian habitat quality by increasing seasonally submerged vegetation, overhead cover, and fish rearing and feeding habitat. Improved floodplain-creek connectivity and enhancement of vegetative cover would likely improve fish rearing habitat, and reduce fish stranding and predation by piscivorous birds.

- **Culvert Replacement:** A new, larger cross-sectional area, steel plate or concrete arch culvert (approximately 10- to 12-feet wide opening) would connect the Site 18A flood basin more openly to NEMDC/Steelhead Creek, and allow for more positive drainage and fish outmigration from the site. The existing culvert would be removed and the new arched culvert would be installed through the bike trail berm in the northwest corner of Site 18A.



Source: Adapted by AECOM in 2015

Exhibit 2-3. Construction Plan View

- **Swale Modifications:** Fish rearing habitat would be enhanced and fish stranding reduced by improving connectivity between NEMDC/Steelhead Creek and the Site 18A floodplain habitats. Existing interior drainage swales would be graded to provide more relief in the micro topography to further enhance outflow gradients between the creek and the basin's vegetated floodplain habitat.

- **Habitat Enhancement:** To improve rearing habitat and refugia in the basin floodplain, additional seasonal wetland plants and riparian scrub would be planted within the Site 18A basin. Enhancement efforts would provide cover and increase habitat variability. Growth rates and canopy cover of existing and proposed new riparian vegetation would be increased by deep-ripping the underlying root-restricting layer (Riverbank Formation) that has suppressed growth rates of trees planted since 1996. Denser, higher quality floodplain habitat and cover for fish would be created at the northwest corner of the Site 18A basin to concentrate and attract fish to the culvert drainage exit.

2.5 PROPOSED CONSTRUCTION ACTIVITIES

2.5.1 SITE ACCESS

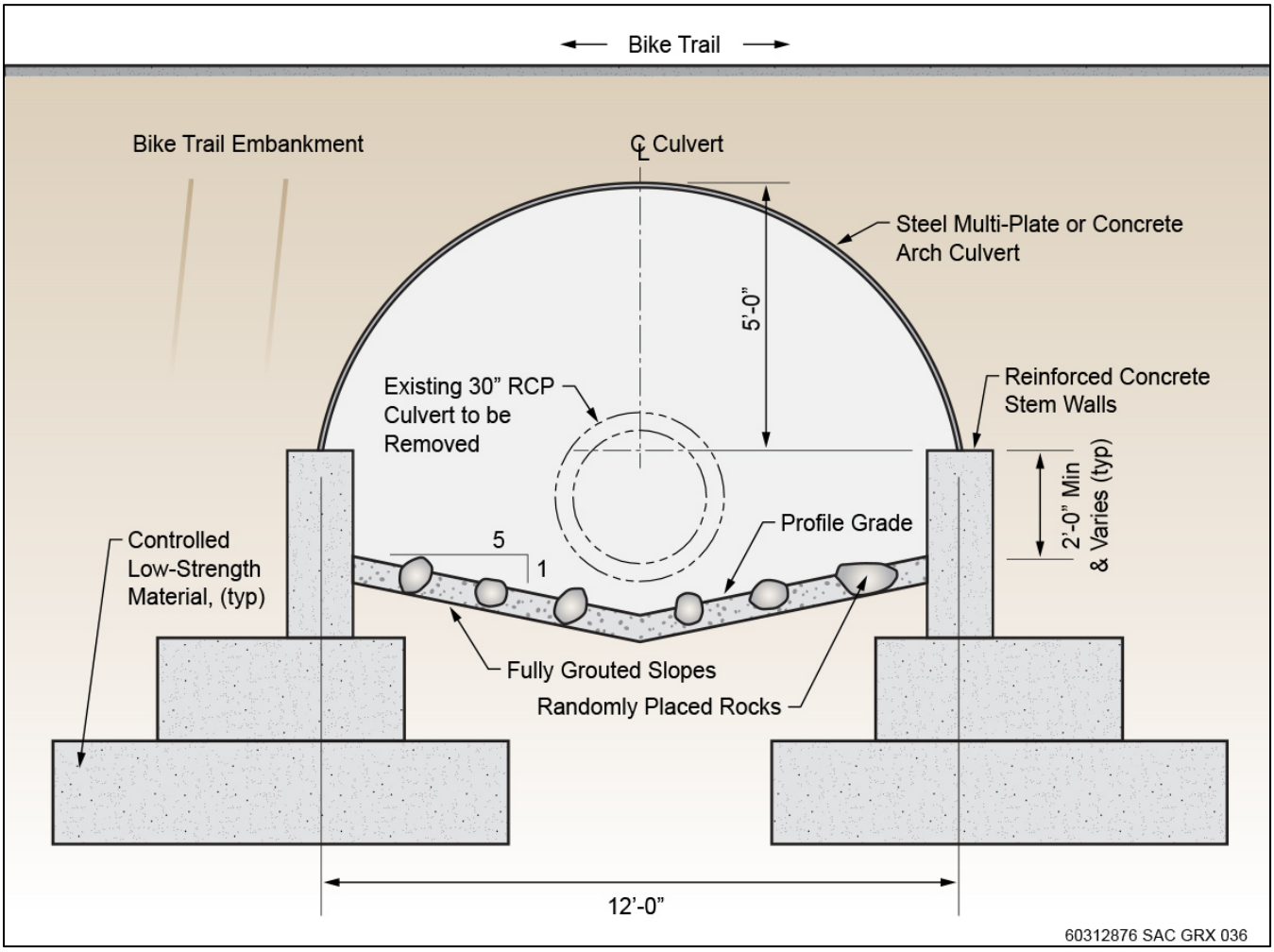
To replace the existing culvert, which crosses under the American River Parkway bike trail near the northwest corner of the Site 18A basin, the bike trail west of the culvert would be temporary realigned to safely route bicyclists and other trail users around the west and south sides of the basin to the section of bike trail at the southeast corner of the site that leads to the bike trail crossing at Del Paso Boulevard. This would require some slight grading and the import of approximately 10 cy of asphalt concrete to install a temporary 8-foot-wide by approximately 130-feet-long trail through an existing gravel and dirt area adjacent to the bike trail intersection at the northwest corner of the Site 18A basin. The temporary trail would be constructed using an asphalt paver, front-end loader, and smooth drum roller. Once the new culvert is in place and construction of the proposed project completed, the temporary asphalt concrete trail would be removed and the material hauled offsite to a local solid waste disposal or recycling facility. The section of paved bike trail that crosses over the culvert would also be reconstructed to pre-project conditions. This reconstruction activity would take approximately two days and entail laying aggregate base rock, an asphalt surface, and decomposed granite shoulders using an asphalt paver, front-end loader and smooth drum roller.

The bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would be closed to the public during construction. Haul trucks would use this portion of the bike trail to access the Site 18A work areas and equipment may be staged in these areas as well. However, the approximately 280-feet-long portion of bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open to the public and also used by haul trucks entering and exiting Site 18A during construction. In order to protect the public during the off-haul and delivery operations, the Contractor would be required to place warning signage and deploy flaggers to intermittently hold public traffic while trucks are traversing the joint-use portion of the bike trail.

2.5.2 CULVERT REPLACEMENT AND APPROACH CHANNELS

An open excavation approximately 40-50 feet wide at the top and narrowing to fit a footing approximately 25 feet wide at the bottom would be needed to construct the new arched culvert. This excavation would extend north and south of the existing culvert to connect NEMDC/Steelhead Creek to the interior of the basin. The existing trees and shrubs within the footprint of the excavation would be removed as part of the project's clearing and grubbing

activities. The existing 170-foot culvert would be removed and replaced with a steel plate or concrete arch culvert that would be between 70 and 110 feet long, approximately 10 to 12 feet wide and 7 feet in height. **Exhibit 2-4** shows a cross section of a typical arched culvert design. The new culvert would sit on cast-in-place concrete footings on each side. The existing culvert's invert elevation is approximately 10.9 feet at the basin side, and the new culvert's invert elevation would be approximately 10.0 feet at the basin side. The invert elevation on the creek side is approximately 9.7 feet, and the new culvert's invert elevation would be approximately 9.0 feet at the creek side. The bottom of the culvert would consist of grouted rip-rap, with a flow line shaped at a gradient of 0.5 percent to the new elevation to discourage ponding of water. Concrete headwalls and wingwalls would be constructed at each end of the culvert. The culvert foundations would consist of approximately 240 cy of controlled low strength material (a sand-cement mixture). The culvert footings would consist of approximately 110 cy of cast-in-place concrete. The culvert headwalls and retaining walls would consist of approximately 100 cy of cast-in-place concrete. Assuming a capacity of 10 cy per load, approximately 45 round trip truck trips would be needed to deliver concrete to the site. The deliveries of concrete would be made at various stages of construction as construction of the foundations and forming of the footings and headwalls is completed. It is anticipated that no more than 24 deliveries would be made on any given day.



Source: Adapted by AECOM in 2015

Exhibit 2-4. Typical Arched Culvert Cross Section

The channels approaching the culvert from the north (outlet channel) and south (inlet channel) would be about 10 feet wide at the bottom and have three horizontal to one vertical (3H:1V) side slopes. The top width of the channel would vary as the side slopes intersect the existing ground along the alignment of the channels.

An estimated 3,000 cy of soil would be excavated to construct the new culvert and the inlet and outlet channels. An excavator would be used to excavate the culvert and associated channels, and load the excavated material onto haul trucks. Approximately 1/3 (i.e., 1,000 cy) of this material would be replaced as backfill on the sides and top of the culvert. The backfill soil would be temporarily stockpiled on-site in a northeast portion of the on-site drainage swales (**Exhibit 2-3**). It is anticipated that three 10-wheel (10 cy capacity) trucks would be needed to haul the material to the on-site stockpile over a 3-day period. A small (D4 or similar) bulldozer would be used to backfill the culvert with the earthen material. Initial stages of soil compaction for the material would be made using jumping-jack style compactors. As the backfill progressed, two hand-controlled sheeps-foot compactors, followed by a driven sheeps-foot roller would be used.

The remaining approximately 2,000 cy of soil would be removed from the site and hauled using 10-wheel dump trucks along Garden Highway to the Natomas Levee Improvement Program (NLIP) being implemented by SAFCA at the Sacramento River East Levee Reach 19A Berm Site, located just east of the Interstate 80 crossing over the Sacramento River, approximately 5 miles west of Site 18A (**Exhibit 2-1**). Assuming use of eight dump trucks with a 10-cy capacity, approximately 150 to 200 round-trip truck haul trips would be needed to transport the excess soil material from Site 18A to the Reach 19A Berm Site over a 4-day period. The transported soil material would be placed along the landside toe of the Reach 19A levee as part of a constructed seepage berm. The site-specific impacts of soil placement at the Reach 19A Berm Site have been addressed in the Draft Environmental Impact Statement (EIS)/EIR on the American River Watershed Common Features Project/Natomas Post-authorization Change Report/Natomas Levee Improvement Program, Phase 4b Landside Improvements Project. The Draft EIS/EIR was published by USACE and SAFCA in 2010. The NLIP Phase 4b Landside Levee Improvements Project Final EIS was issued by USACE in October 2010 and SAFCA certified the Final EIR (FEIR) in November 2010. The NLIP Phase 4b FEIR document also addressed significant hauling and lane closures on Garden Highway for the transport of soil material to the Reach 19A Berm Site.

Approximately 60,000 cy of soil would be hauled along Garden Highway from Natomas Park Drive to the Reach 19A Berm Site as part of the American River Mile 0.5/Reach 19A projects. Haul trips from the River Mile 0.5 Site (**Exhibit 2-1**) to the Reach 19A Site were addressed in the Draft Supplemental EIR (SEIR) No. 2 for the NLIP Landside Improvements Project (SAFCA 2012). The Final SEIR was certified by SAFCA on October 18, 2012. The proposed project would potentially provide an additional 2,000 cy of soil to the Reach 19A Berm Site. Soil haulage from the American River Mile 0.5 site to the Reach 19A Berm Site was analyzed in SEIR No. 2. Therefore this IS/MND addresses the additional distance that soil would be hauled from the project site at Del Paso Boulevard to Northgate Boulevard, and along Garden Highway to the intersection with Natomas Park Drive. The total yardage is an estimate based on grading plans and actual yardage may be more or less.

Following excavation of the new culvert and approach channels, approximately 650 tons of imported rip-rap would be used to line the culvert invert (approximately 3 feet deep) and the approach channels. Approximately 40 cy of concrete would be used for grouting the rip-rap within the culvert. This would require the use of a concrete truck and pump rig. The rip-rap on the culvert approach channels would not be grouted but would be backfilled with soil to allow planting of grass.

A water truck, which would obtain water from a nearby City of Sacramento fire hydrant, would provide dust control during excavation and grading operations and would provide water for moisture conditioning the backfill soils.

2.5.3 CULVERT MAINTENANCE

Debris that may accumulate within the new culvert would be cleared every 6 months or as needed by SAFCA or its contractors or partners. During routine maintenance, any needed repairs, vandalism and/or graffiti observed on the headwalls and wing walls would be reported and the appropriate actions would be taken. In addition, issues associated with beaver activity or flood debris that could clog the culvert would be noted and the area would be targeted for the removal of downed vegetation if and as necessary.

2.5.4 SWALE MODIFICATIONS

To reduce fish stranding and improve rearing habitat, inflow and outflow would be enhanced through grading so the existing interior drainage swale gradients would match the new culvert's invert elevation (**Exhibit 2-3**). Following replacement of the culvert and removal of the temporary stockpile of native soil material, the existing floodplain swales would be graded to an increased depth of 6 inches to 1 foot. Swales would be approximately 2 feet wide at the bottom with 3H:1V side slopes. Swales around the two islands in the north portion of the site, including the portion of the swale that would harbor the temporary stockpile, and the swales along the interior southern perimeter of the basin would be graded and/or filled. Spoils and other fill generated from excavation activities would be placed to ensure positive drainage to the culvert and eliminate shallow ponding. This would improve the gradient and ultimately the connectivity of water flow between NEMDC/Steelhead Creek and Site 18A.

During the swale modifications phase, the root-restricting soil layer underlying areas adjacent to the swales would be deep-ripped, disked, and the large clods pulverized to 1- to 2-inch clods to facilitate plant growth by improving rooting depth and infiltration. Soils would be prepared for revegetation by incorporating appropriate amendments (such as gypsum) and organic compost to a depth of 12 to 18 inches. The incorporation of compost and the appropriate amendments would improve soil conditions and benefit plants through improved water holding capacity, soil structure, and aeration. The appropriate type and volume of amendments would be identified through laboratory analysis of soil samples. The areas under the flow line of the swales would be left un-ripped and un-amended in order to avoid future differential settling that could lead to the reemergence of micro ponding areas.

2.5.5 HABITAT REVEGETATION AND ENHANCEMENT

Planting and seeding would commence after completion of the culvert replacement, soil preparation, finish grading of the modified swales, and placement of rock within the new culvert bottom and approach channels.

Areas disturbed during the culvert construction and swale modification would be seeded with an erosion control grass seed mix appropriate for the variable soil moisture regime and inundation frequency of the site. Seeding for erosion control of disturbed areas and channel habitat would typically occur from late October through December, just before the first wetting rain. All areas with bare soil surfaces within swales and riparian and upland habitat areas would be seeded one growing season before plants are to be installed to stabilize the soil and allow time for an annual cycle of weed management. Seed of native grasses would be applied at a rate of approximately

16.5 lbs/acre using a combination of native grass seed drills (e.g., Truax Grass Drill) and broadcast seeding. **Table 2-1** provides an example of the potential composition and relative proportion of species that may be used in the grass seed mix.

Table 2-1. Example Grass Seed Mix

Scientific Name	Common Name	Pure Live Seed (lbs./acre)
Agrostis exarata	bentgrass	0.1
Deschampsia cespitosa	tufted hairgrass	0.2
Elymus glaucus[1]	blue wildrye	3.0
Elymus trachycaulus[2]	slender wheatgrass	3.0
Hordeum brachyantherum	meadow barley	4.0
Leymus triticoides[3]	creeping wildrye	4.0
Muhlenbergia rigens	deergrass	0.2
Sporobolus airoides	alkali sacaton	2.0
Total for mix		16.5

Notes:
[1] Flood tolerant ecotype.
[2] Mayus ecotype from the Sacramento Valley.
[3] Flood tolerant 'Rio' or 'Yolo' ecotypes.
Source: Data compiled by AECOM in 2015

Riparian and willow scrub vegetation would be enhanced through planting a combination of nursery-grown container stock, oak acorns, and live cuttings of willow from harvest sites in the project vicinity. These plantings would be installed along the edge of the swales during the fall following completion of grading and 1 year after seeding the work area. Dense (roughly 200 plants per acre), high quality floodplain habitat and cover for fish would be concentrated within and adjacent to the swales in the northwest corner of the Site 18A basin. Where thickets of willow scrub are desired to provide dense refugia and cover for fish, cuttings would be planted 2 to 3 feet on center in parallel rows. In other locations, taller species of trees would be planted 15 to 20 feet on center, and smaller species of trees and shrubs would be planted 5 to 15 feet on center. An example palette of floodplain adapted species that have potential to be planted along the edge of the swales is provided in **Table 2-2**.

2.5.6 HABITAT ESTABLISHMENT AND MAINTENANCE

Habitat establishment is anticipated to occur within 3 to 5 years. However, supportive maintenance activities would be implemented for a minimum of 5 years to ensure successful establishment of vegetation. Maintenance activities needed to support revegetation of the disturbed areas and establishment of the new plantings within and adjacent to the swales would include temporary plant irrigation, weed control (mowing, hand weeding, and herbicide application), debris removal, mulching, protection from beaver/deer damage (fence/cage surrounding some plants), and corrective measures such as replanting and reseeding. Maintenance needs would be evaluated during the establishment efforts and may vary in timing or frequency in accordance with conditions on the ground. The intent of habitat establishment and maintenance would be to promote healthy, vigorous, and self-sustaining habitat that would thrive without supplemental intervention after 5 years.

Table 2-2. Example Plant Palette for the Edge of Swales	
Scientific Name	Common Name
Acer negundo	boxelder
Baccharis salicifolia	mulefat
Fraxinus latifolia	Oregon ash
Juglans nigra	Black walnut
Platanus racemosa	California sycamore
Populus fremontii	Fremont cottonwood
Quercus lobata	Valley oak
Rubus ursinus	California blackberry
Salix exigua spp. hindsiana	sandbar willow
Salix gooddingii	black willow
Salix lasiolepis	Arroyo willow
Vitis californica	California wild grape
Source: Data compiled by AECOM in 2015	

Irrigation during plant establishment would be supported either by a temporary irrigation system that would pump water from NEMDC/Steelhead Creek or by water truck deliveries. Water would be applied at a rate sufficient to wet the soil and saturate the root zone of installed plants without causing erosion, damage to plants, or excessive runoff. The watering regime would be designed to establish healthy and vigorous plants and would include a "weaning off" period to prevent plants from becoming irrigation-dependent. If a temporary irrigation system is employed, it would be checked monthly, or as needed, during the dry season (typically from April through September) to ensure proper functioning and to identify leaks and implement necessary repairs. An example 5-year irrigation schedule is provided in **Table 2-3**.

Table 2-3. Example Irrigation Schedule[1] for Trees and Shrubs

Year	Application Period	Frequency	Duration
1	April – Oct (7 months)	8 gallons every 2-3 days	8 hours
2	April – Oct (7 months)	8 gallons every 3-5 days	8 hours
3	April – Sep (6 months)	8 gallons every 10-14 days	8 hours
4	May – Sep (5 months)	10 gallons every 28 days	8 hours
5	June – Sept (4 months)	Irrigate only if severe water stress occurs; Monitor	8 hours / TBD

Note:
[1] Actual irrigation schedule would depend on climate conditions and temporal variations in weather patterns.
Source: Data compiled by AECOM in 2014

Weed control activities would be performed typically 3 times during the growing season for the first 3 to 5 years to reduce invasive weed establishment. This activity may involve hand weeding, use of mechanical equipment (e.g., mowing), and herbicide application to support establishment of native and/or desirable installed vegetation and reduce or suppress nonnative and/or undesirable vegetation (i.e., noxious weeds). Herbicides would be

applied according to the label, in accordance with applicable Federal and State laws, including those pertaining to herbicide application in or near wetlands.

Debris removal would occur during weed control operations or as scheduled by SAFCA. Debris blown into or placed in the basin, such as any human-made debris, would be removed as necessary. Debris removal would be performed using hand-clearing or low-impact methods and the debris would be hauled off-site in accordance with State and local regulations. Natural vegetation debris and woody materials would not be removed unless necessary to maintain proper drainage within the swales and prevent blockage of the culvert, or ensure public safety.

Mulch applications around plantings would occur annually in the spring prior to initiating irrigation for at least the first 3 years. Invasive grasses tend to encroach on new plantings and seedlings, removing soil moisture and nutrients, and effectively out-competing newly installed trees and shrubs. Mulch applications would reduce establishment of invasive grasses within the canopy of the plantings, evaporative loss of soil moisture, and soil compaction, while providing slow-release nutrients.

The health, vigor, and survivorship of all plant materials would be maintained and monitored by SAFCA. During the habitat establishment and maintenance period, SAFCA would periodically inspect the installed plantings and seeded areas to examine their condition, and would re-seed or install replacement plants where needed. Seed and replacement plants would be obtained from the same source used for the initial installation or from a similar local source.

Riparian plantings along the swale's edge may require protection during the establishment phase to limit damage from beavers and browsing deer. Low (e.g. 3 to 4 feet high) fencing may be installed around some plantings. This fencing would likely be constructed of welded wire mesh (steel) with 2-inch by 4-inch mesh openings. It would be placed directly on the soil surface, not keyed into the soil, and held in place with metal stakes. Alternatively, woody plants may be protected from beaver damage with staked chicken wire cages. All fencing and cages would be removed once riparian plantings are sufficiently established.

2.6 CONSTRUCTION SEQUENCING

Construction of the proposed culvert replacement portion of the project would begin in summer 2015 and would be completed by the end of the year. Swale modifications would begin in August 2015 and would be completed by the end of October 2015. Grass seeding would occur immediately following completion of construction and swale grading activities. Planting of riparian vegetation would likely be completed during September or October 2016 and would require approximately 7 days to complete. **Table 2-4** summarizes the estimated length of time required to construct individual components of the proposed project. Construction would occur between the hours of 7 a.m. and 6 p.m. Monday through Saturday, and between 9 a.m. and 6 p.m. on Sundays.

Table 2-4. Duration of Construction Activities	
Improvements	Estimated Duration
Temporary Bike Trail Realignment	
Installation	3 days
Removal	1 day
Culvert and Approach Channel Construction	
Excavation	4 days
Installation of Culvert and Rip-Rap Replacement	3 weeks
Backfill and Grading	5 days
Habitat Enhancement	
Swale Grading	2 days
Deep Ripping and Soil Improvements	3 days
Seeding Native Grass Mix	2 days
Installation of Riparian Plantings	5 days
Source: Data compiled by AECOM in 2015	

2.7 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

As the lead agency under CEQA, SAFCA has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and all other applicable regulations are met. Other permitting agencies that may have permitting approval or review authority over portions of the proposed project are listed below.

- **U.S. Army Corps of Engineers**—Department of the Army, Clean Water Act Section 404 Permit for discharge of fill to Waters of the U.S.; Rivers and Harbors Act Section 408 Permission
- **U.S. Fish and Wildlife Service**—Federal Endangered Species Act (ESA) compliance; Section 7 consultation.
- **National Oceanic and Atmospheric Administration National Marine Fisheries Service**—ESA compliance; Section 7 consultation.
- **Central Valley Regional Water Quality Control Board**—Clean Water Act Section 401 Certification; and Clean Water Act Section 402 National Pollutant Discharge Elimination System stormwater permit for general construction.
- **Central Valley Flood Protection Board**—Floodway encroachment permit.
- **California Department of Fish and Wildlife**—Section 1602 streambed alteration agreement; California Endangered Species Act compliance.
- **Sacramento Metropolitan Air Quality Management District**—Title V permit for general construction.
- **Sacramento County**—Right-of-entry permit.

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3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION		
1.	Project Title:	Site 18A Culvert Replacement and Fish Passage Enhancement Project
2.	Lead Agency Name and Address:	Sacramento Area Flood Control Agency, 1007 7th Street, 7th Floor Sacramento, CA 95814
3.	Contact Person and Phone Number:	John A. Bassett, Sacramento Area Flood Control Agency, (916) 874- 7606
4.	Project Location:	The proposed project is located south of Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, north of Del Paso Boulevard and east of Northgate Boulevard, approximately 1/4 mile east of Camp Pollock within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sacramento County, California
5.	Project Sponsor's Name and Address:	Sacramento Area Flood Control Agency (see above address)
6.	General Plan Designation:	Recreation/Waterway
7.	Zoning:	American River Parkway – Floodplain Zone
8.	Description of Project:	

The Sacramento Area Flood Control Agency is proposing to improve floodplain-creek connectivity and enhance vegetative cover in the Site 18A basin to improve fish rearing habitat, and reduce fish stranding and predation by piscivorous birds. For further information, see Chapter 2 of this Initial Study/Mitigated Negative Declaration.

9.	Surrounding Land Uses and Setting:	Industrial, residential and recreation. See "Environmental Setting" discussion under each issue area in Chapter 3, "Environmental Checklist."
10:	Other public agencies whose approval may be required:	U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service, California Department of Fish and Wildlife, Sacramento Metropolitan Air Quality Management District, Central Valley Regional Water Quality Control Board, Sacramento County and Central Valley Flood Protection Board

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation / Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance
		☒ None With Mitigation

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 ENVIRONMENTAL SETTING

Site 18A is an approximately 17-acre basin within the American River Parkway that contains seasonally flooded wetland and riparian habitat. The basin is surrounded by an approximately 13-feet-high embankment. The American River Bike Trail runs along the top of this embankment on all four sides of the basin. Dense riparian woodlands are located northeast of the site along both sides of NEMDC/Steelhead Creek and west of Northgate Boulevard. To the east of Site 18A is the NEMDC East Levee and commercial and light industrial land uses that include an indoor soccer arena, paper recycling facility, and an auto repair shop. The Sacramento Northern Bike Trail is located east of Site 18A and the bike trail runs in a north-south direction along the NEMDC East Levee crown. The closest residences to Site 18A are located to the north on the north side of the Arden-Garden Connector.

3.1.2 DISCUSSION

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

Less-than-Significant Impact. Scenic vistas are generally defined as a view of a highly valued landscape from a public viewpoint. The Sacramento 2030 General Plan designates views from public places to the Sacramento and American Rivers and adjacent greenways as scenic views (City of Sacramento 2014). The American River Parkway bike trail runs along the top of the embankment surrounding the project site. The bike trail near the northwest corner of the project site would be temporarily realigned to allow for construction site access to the existing culvert which crosses under the bike trail/berm on the northwest side of the basin. The trails along the north and east sides of the project site would be closed for use by haul trucks. Visual impacts would be temporary during construction, which is planned to begin in spring 2015 and be completed by the end of the year. Following construction, the bike trail would be returned to its pre-project alignment and conditions. The proposed project also includes a plan for habitat revegetation and enhancement to improve growth potential of riparian and seasonal wetland vegetation which would improve the scenic view of the project site. Because construction activities would be temporary and short-term, the bike trail would be returned to pre-project conditions following construction, and the habitat within the basin would be enhanced as a result of the proposed project, the proposed

project would not have a substantial adverse impact on any scenic views. This impact would be less than significant, and no mitigation would be required.

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

No Impact. State Route 160 is an officially designated scenic highway from the Contra Costa County line to the southern City limit of Sacramento. The portion of State Route 160 in the vicinity of the proposed project, called the North Sacramento Freeway, is not designated as a scenic highway. Therefore, there would be no impact with regard to damage to scenic resources within a State scenic highway and no mitigation would be required.

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

Less-than-Significant Impact. During construction, the visual character of the site would be somewhat degraded due to the presence of construction equipment, soil stockpiles, and construction worker vehicles in the basin and along the north and east sides of the bike trail/berm. After the culvert is replaced, habitat revegetation and enhancement would occur which would improve the visual quality of the project site. Because construction would be temporary and short-term, and habitat enhancements within the basin would improve the visual quality, this impact would be less than significant, and no mitigation would be required.

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

No Impact. The proposed project would not create any additional lighting at the project site. Construction at the project site would occur between the hours of 7:00 am and 6:00 pm Monday through Saturday; and between the hours of 9:00 am and 6:00 pm on Sunday, so there would be no need for lighting equipment to be used during construction. Therefore, there would be no impact, and no mitigation would be required.

3.2 AGRICULTURE AND FORESTRY RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forestry Resources. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 ENVIRONMENTAL SETTING

AGRICULTURAL RESOURCES

Site 18A is an approximately 17-acre seasonal wetland and seasonally flooded riparian habitat area in the American River Parkway. Site 18A was used as a borrow site in 1996, after which time, the area was graded and planted by SAFCA to support riparian floodplain and seasonal wetland habitat (see Section 3.10, "Land Use and Planning," for additional information on land uses within and adjacent to Site 18A). The site is not zoned for

agricultural uses and there are no active agricultural land uses or land held under a Williamson Act Contract within or in the vicinity of the site (California Department of Conservation [DOC] 2013). The site is also not zoned as forestland, timberland, or a Timberland Production Zone.

Farmland Mapping and Monitoring Program

The DOC's Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—recognize the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by DOC as "Agricultural Land." In addition, DOC identifies other categories based on their suitability for agricultural use. The list below provides a comprehensive description of all the categories mapped by the DOC. According to the Farmland Mapping and Monitoring Program (FMMP):

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.
- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
- **Unique Farmland**—Land of lesser quality soils used for the production of the State's leading agricultural cash crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California.
- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy, as defined by each county's local advisory committee and adopted by its board of supervisors.
- **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- **Urban and Built-Up Lands**—Land that is used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.
- **Land Committed to Nonagricultural Use**—Land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands.
- **Other Lands**—Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development.

The Important Farmland Map for Sacramento County, produced by the DOC Division of Land Resource Protection (2014), was used to evaluate the agricultural significance of the lands within and in the vicinity of Site 18A. According to the Sacramento County Important Farmland map, Site 18A is designated as Farmland of Local Importance and surrounding lands in the vicinity of Site 18A are designated as Farmland of Local Importance,

Urban and Built-Up Land, and Other Land (DOC 2014). These designations are not considered by the DOC as Important Farmland.

FORESTRY RESOURCES

Appendix G of the State CEQA Guidelines defines forestland as land that can support 10 percent native tree cover and woodland vegetation of any species—including hardwoods—under natural conditions, and that allows for management of one or more forest resource—including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation—and other public benefits (California Public Resources Code [PRC] 12220[g]).

Approximately 1.44 acres of Fremont cottonwood forest and approximately 4.24 acres of valley oak woodland occur within Site 18A. Fremont cottonwood forest occurs in the southwestern portion of Site 18A and is dominated by Fremont cottonwood and black willow. Valley oak woodland occurs along the northeastern, eastern, and western borders of Site 18A and is characterized by valley oak interspersed with interior live oak, Fremont cottonwood, and sycamore (see Section 3.5, "Biological Resources," for further discussion). Most of these trees were planted by SAFCA after 1996 as part of the restoration program following borrow extraction.

These communities do not represent 10 percent native tree cover on Site 18A and offer limited habitat for resident and migratory birds and small mammals because of the site's proximity to nearby urban development and associated roadways, walkways, and bike trails. Therefore, the Fremont cottonwood forest and valley oak woodland on the project site do not satisfy the requirements of PRC Section 12220(g).

3.2.2 DISCUSSION

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

No Impact. As discussed previously, Site 18A is designated by the Sacramento County Important Farmland Map, published by DOC's Division of Land Resource Protection, as Farmland of Local Importance (DOC 2014). The conversion of this land would not be considered a significant impact under the State CEQA Guidelines.

Because there are no agricultural land uses present within or in the vicinity of Site 18A, implementing the proposed project would not result in other changes in the physical environment that could result in the conversion of agricultural land, including Important Farmland, to nonagricultural uses. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. Site 18A and lands surrounding the site are not zoned for agricultural uses and there are no lands held under a Williamson Act Contract (DOC 2013). Therefore, implementing the proposed project would not conflict with existing zoning for agricultural uses or conflict with a Williamson Act contract. No impact would occur, and no mitigation would be required.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. Site 18A is not zoned as forestland, timberland, or a Timberland Production Zone. Thus, implementing the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources. No impact would occur, and no mitigation would be required.

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

No Impact. As stated previously, Site 18A does not contain forestland as defined by PRC Section 12220(g). Therefore, implementing the proposed project would not result in the loss of forestland or conversion of forestland to non-forest uses. No impact would occur, and no mitigation would be required.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. See responses to items a) and d) above. Implementing the proposed project would not result in other changes in the physical environment that could directly or indirectly result in the conversion of agricultural land, including Important Farmland, to nonagricultural uses or result in the conversion of forestland to non-forest uses. Therefore, no impact would occur, and no mitigation would be required.

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 ENVIRONMENTAL SETTING

The project study area is located within Sacramento County, which is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). SMAQMD is part of the Sacramento Valley Air Basin (SVAB). The SVAB encompasses Butte, Colusa, Glenn, Tehama, Shasta, Yolo, Sacramento, Yuba, and Sutter Counties and parts of Placer, El Dorado, and Solano Counties. The SVAB is bounded on the west and north by the Coast Ranges, on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada, and on the south by the San Joaquin Valley Air Basin. Summer conditions are typically characterized by high temperatures, low humidity, and light winds, with periods of moderate to strong southwesterly winds out of the San Francisco Bay Area and Sacramento-San Joaquin Delta regions. The regional rainy season occurs mainly from late October to early May, in amounts that vary substantially from year-to-year, and is characterized by brief periods of rain interspersed with stagnant and sometimes foggy weather.

The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) have identified six air pollutants as being of nationwide and Statewide concern: ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, lead, and particulate matter (PM). PM is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}) and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$).

Health-based air quality standards have been established for these pollutants by EPA at the national level and by ARB at the State level. These standards are referred to as the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQS), respectively. The NAAQS and CAAQS were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Both EPA and ARB designate areas of the State as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), respectively. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant. The "unclassified" designation is used in an area that cannot be classified as meeting or not meeting the standards, based on available information.

Sacramento County is currently designated as a nonattainment area for all ozone and $PM_{2.5}$ standards under NAAQS and CAAQS. Sacramento County is also designated as nonattainment for the 24-Hour and Annual PM_{10} California standards. Sacramento County technically attained the Federal 1-hour Ozone standard in 2009 but since EPA revoked this standard, some associated requirements still apply. SMAQMD has requested EPA recognize attainment to fulfill the requirements. Sacramento County is either an attainment area or unclassified for the remaining pollutants under NAAQS and CAAQS (SMAQMD 2013).

SMAQMD is the agency responsible for air quality planning and development of the air quality attainment plan (AQAP) in the study area. The AQAP establishes the strategies that will be used to achieve compliance with the CAAQS in all areas within SMAQMD's jurisdiction. All projects within SMAQMD's jurisdictional area are subject to adopted SMAQMD rules and regulations in effect at the time of construction and operation.

3.3.2 DISCUSSION

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

Less-than-Significant Impact. This impact is determined based on whether the proposed project would conflict with or obstruct implementation of the AQAP and/or applicable portions of the State Implementation Plan (SIP), which would lead to increases in the frequency or severity of existing air quality violations. The CCAA of 1988 requires the air districts to achieve and maintain the State ambient air quality standards by the earliest practicable date and develop plans for attaining the State ozone, CO, sulfur dioxide, and nitrogen dioxide standards.

Consistency with the AQAP is determined by analyzing a project with the assumptions in the plans. Temporary and short-term construction activities for the proposed project would involve the use of off-road equipment and haul trucks, as well as worker commute trips. Proposed project operations would not substantially increase long-term operational mobile-source emissions that were previously included in the AQAP. As discussed in greater detail under item b) below and summarized in **Table 3.3-1**, construction activities for the proposed project would generate daily oxides of nitrogen (NO_x) emissions that would be below SMAQMD's threshold of significance. SMAQMD thresholds of significance are considered the allowable emissions limits for each project to avoid impeding the region's attainment and maintenance of ambient air quality standards (i.e., the purpose of AQAPs). Accordingly, construction of the proposed project without mitigation would not exceed the assumptions used to develop the current AQAP and would not obstruct or conflict with the applicable air quality plan. Therefore, this impact would be less than significant, and no mitigation would be required.

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

Less-than-Significant Impact. Construction emissions are considered short-term and temporary, but they have the potential to represent a significant impact with respect to air quality. Construction of the proposed project would temporarily generate emissions of reactive organic gases (ROG) and NO_X, CO, PM_{10}, and $PM_{2.5}$. Emissions of ozone precursors (e.g., ROG and NO_X) are generated primarily by on-road mobile sources (i.e., delivery vehicles, haul trucks, construction worker vehicles) and off-road construction equipment. The level of emissions generated varies as a function of vehicle trips per day for worker commute trips and haul truck trips, and the types and number of heavy-duty, off-road equipment used and their respective intensity and frequency of operation.

Fugitive PM dust is one of the pollutants of greatest concern with respect to construction activities. Construction-related fugitive PM dust emissions can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance. The culvert replacement (i.e., excavation of soil) and swale grading activities would be the primary source of fugitive PM dust emissions from construction activities. Movement of off-road construction equipment and work trucks on unpaved roads can also generate fugitive PM dust emissions.

Construction-related exhaust emissions were modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, which was the most currently available version at the time of this analysis. CalEEMod allows the user to enter project-specific construction information, such as the types, number, and horsepower of construction equipment, and the number and length of off-site motor vehicle trips. Construction-related emissions for the proposed project were estimated for construction worker commutes, haul trucks, and the use of off-road equipment. **Table 3.3-1** shows the unmitigated emissions associated with construction activities.

As shown in **Table 3.3-1**, temporary and short-term construction-related emissions for the proposed project would result in maximum daily emissions of approximately 78.85 pounds of NO_X, which would be below the SMAQMD threshold of significance. Projects that generate construction-related emissions below SMAQMD's threshold of significance are considered to generate emissions below the allowable limit to avoid violating or substantially contributing to an air quality violation. In addition, regardless of the level of emissions, SMAQMD requires all projects to implement their Basic Construction Emission Control Measures (listed below). Therefore, with implementation of the SMAQMD Basic Construction Emission Control Measures, this impact would be less than significant, and no mitigation would be required.

The following SMAQMD Basic Construction Emission Control Measures are required for all projects regardless of the level of emissions:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover, maintain at least 2 feet of free board space, or maintain suitable moisture condition in the materials in haul trucks transporting soil, sand, or other loose material.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

Table 3.3-1. Proposed Project Unmitigated Construction Emissions				
	Daily Emissions (lbs/day)			
Construction Phase	ROG	NO_X	PM_{10}	$PM_{2.5}$
Temporary Bike Trail Realignment				
Installation	2.50	24.29	1.70	1.50
Removal	0.44	3.96	0.40	0.31
Culvert and Approach Channel				
Excavation	2.48	78.85	197.48	31.08
Install Culvert and Rip-Rap Replacement	3.28	31.99	8.61	2.86
Backfill and Grading	1.91	26.03	4.19	1.50
Habitat Enhancement				
Swale Grading	1.24	12.36	66.32	14.31
Deep Ripping and Soil Improvements	2.14	23.70	33.99	7.88
Seeding Native Grass Mix	0.13	0.98	0.17	0.09
Installation of Riparian Plantings	0.13	0.98	0.17	0.09
Irrigation	0.50	3.59	0.27	0.27
Maximum Daily Emissions	3.28	78.85	197.48	31.08
SMAQMD Threshold	N/A	85	N/A	N/A
Exceeds project threshold?	-	No	-	-

Notes: lbs/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 micrometers; ROG = reactive organic gases; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 micrometers

Source: MGE Engineering, data compiled and modeled by AECOM 2015

- Limit vehicle speed on unpaved roads to 15 mph.
- Complete pavement of all roadways, driveways, sidewalks, 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.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. Have the equipment checked by a certified mechanic and determined to be running in proper condition before it is operated.

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

Less-than-Significant Impact. The cumulative analysis focuses on whether a specific project would result in a cumulatively considerable incremental contribution in pollutant emissions to an existing significant cumulative impact. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional

pollutants is a result of past and present development within the SVAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

SMAQMD's thresholds of significance are relevant to whether a project's individual emissions would result in a cumulatively considerable incremental contribution to existing cumulatively significant air quality conditions. These thresholds are designed to identify those projects that would result in significant levels of air pollution on a project level, and to assist the region in attaining the applicable CAAQS and NAAQS. Projects that would exceed these thresholds would be considered significant on a project level and would also be considered to contribute a cumulatively considerable amount of pollutants to regional emissions. As shown in **Table 3.3-1** and discussed under item b), the proposed project would not generate temporary and short-term construction-related emissions that exceed any of SMAQMD's thresholds of significance. Therefore, this impact would be less-than significant, and no mitigation would be required.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. Some members of the population are especially sensitive to emissions of air pollutants and should be given special consideration during the evaluation of a project's air quality impacts. These people include children, older adults, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptor to the project site is a group of single-family residences located approximately 400 feet north of the project site. In addition, the project site is surrounded by a portion of the American River Parkway bike trail that is used for recreational purposes (i.e., biking, running, and walking). However, because of the short-term nature of construction activities (i.e., total of 2 months of construction), implementation of SMAQMD-required Basic Construction Emission Control Measures, and the minimal exposure that recreational trail users would be exposed to (i.e., exposed only along that particular segment of the American River Parkway), it is not anticipated that the proposed project would expose recreational users of the American River Parkway to substantial pollutant concentrations.

The greatest potential for toxic air contaminant (TAC) emissions would be related to diesel PM emissions associated with activity by heavy-duty construction equipment. ARB classified diesel PM as a TAC in 1998. Most of the estimated local health risk from TACs is from diesel PM. Construction emissions associated with the proposed project would last approximately 2 months, after which all construction activities and associated diesel PM emissions would cease.

The dose to which receptors are exposed is the primary factor used to determine health risk and is a function of the concentration and duration of exposure. According to the State Office of Environmental Health Hazard Assessment (OEHHA), health-risk assessments that determine the health risks associated with exposure of residential receptors to TAC emissions should be based on a 70-year exposure period (OEHHA 2003). However, health-risk assessments should be limited to the period/duration of activities associated with the emissions activity. Therefore, the total exposure time where some level of construction activities and subsequent diesel PM emissions are occurring would be approximately 2 months, which is less than the minimum number of years recommended for a health-risk assessment and less than 1 percent of the total exposure time for a typical health-risk assessment. The dose (i.e., concentration levels) to which nearby receptors would be exposed is of concern

because of their distance from the project site (approximately 400 feet from the nearest sensitive receptor to the site). ARB's *Air Quality and Land Use Handbook* states that PM levels drop by 70 percent at a distance of 500 feet from a roadway. Although the nearest sensitive receptor would be closer than the 500 feet, it is anticipated that the intermittent nature and low intensity of construction emissions compared to a roadway with constant traffic, coupled with the 400 feet would minimize pollutant concentrations from the proposed construction activities.

In addition, although a majority of construction emissions associated with culvert replacement and bike trail realignment would be focused at the north end of the site, construction activities such as swale grading would occur throughout the project site farther away from the nearest sensitive receptor. Although a majority of the proposed project's total construction-related TAC emissions would occur within 400 feet of the sensitive receptors, most residents of households tend to spend a majority of their daytime weekdays away from home either at work or school which is when the construction activities are expected occur. Furthermore, as described above, total construction activities would last approximately 2 months and would cease following completion of the proposed project. Therefore, it is anticipated that a majority of diesel PM emissions would occur when the nearest sensitive receptors are away from their residences and thus limiting exposure time. It should be noted that construction activities could also occur on Saturdays when sensitive receptors are more likely to be present in their homes and the American River Parkway is more frequently used. However, because of the temporary and short-term nature of the proposed project (i.e., total of 2 months), weekend construction workdays would be limited (i.e., total of eight Saturdays of work) and would cease following completion of the proposed project.

Because of the temporary and intermittent use of off-road construction equipment, and the spatial-temporal activity of the nearest sensitive receptors, the dispersive properties of diesel PM (Zhu et al. 2002), and the relatively low exposure period, temporary and short-term construction activities would not result in the exposure of sensitive receptors to substantial TAC concentrations. This impact would be less than significant. No mitigation would be required.

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

Less-than-Significant Impact. The occurrence and severity of odor impacts depend on numerous factors such as the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Offensive odors rarely cause any physical harm, but they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. SMAQMD recommends that lead agencies consider the potential of a project to locate receptors near an existing odor source or to locate an odor source near existing sensitive receptors.

Construction of the proposed project is not anticipated to expose nearby off-site receptors to objectionable odors. Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The closest sensitive receptor to the project site is located at least 400 feet from the boundary of the project site, which would allow an opportunity for the intermittent and temporary odor emissions to disperse and dilute with ambient air. In addition, and as described above in question d), the nearest residents would most likely be at work or school and therefore not be in or around their residences when a majority of the construction activities are occurring. In addition, as described above, the project site is also surrounded by a portion of the American River Parkway bike trail, which is used for recreational purposes. However, recreational users would only be exposed to potential odors from the

project site for a limited amount of time based on the temporary and short-term nature of construction activities and the finite segment of the trail adjacent to the proposed project. Therefore, it is not anticipated that the proposed project would expose recreational users of the American River Parkway to objectionable odors.

Because of the diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with project construction. The proposed project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. After construction of the proposed project, all construction-related odors would cease. Operation of the proposed project would not add any new odor sources. As a result, the proposed project would not create objectionable odors affecting a substantial number of people. This impact would be less than significant. No mitigation would be required.

3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

Information on biological resources known to or with potential to occur on and adjacent to the project site is based on multiple field surveys conducted by AECOM biologists and SAFCA ecologists in late 2014 and early 2015. Biological resource databases, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) online inventory of rare and endangered plants (CNPS 2014), were queried for records of sensitive species occurrences in the vicinity of the project site. Historical aerial photography and documents addressing biological resources in the project vicinity and the larger region also were reviewed.

3.4.1 ENVIRONMENTAL SETTING

As described in Chapter 2, “Project Description,” most of the project site is a basin that was graded and planted to support floodplain riparian and seasonal wetland habitat following borrow excavation in 1996. As a result of the grading, the basin floor contains a mosaic of excavated swales and higher elevation islands. The elevation range of the project site is approximately 10 to 25 feet above mean sea level, with the highest elevations on the berms

surrounding the basin and the lowest elevation at the bottom of the swale in the northwest corner of the basin, where it enters the culvert connecting to the NEMDC/Steelhead Creek.

The project site is not located in an area included in an adopted Habitat Conservation Plan (HCP), natural community conservation plan, or other approved State, regional, or local HCP, including the Natomas Basin Habitat Conservation Plan.

VEGETATION

Exhibit 3.4-1 shows habitats present in the study area for the wetland delineation conducted in January and February 2015. On-site vegetation varies with the topography, supporting valley oak (*Quercus lobata*) woodland on the tops of the basin berms and NEMDC/Steelhead Creek banks, wild oats grassland in open areas on the berm slopes, planted black willow (*Salix gooddingii*) thickets on the higher basin islands, perennial rye grass (*Festuca perennis*) fields in higher areas of the basin floor, Fremont cottonwood (*Populus fremontii*) forest at the southern end of the basin, chamomile-popcornflower patches in swales at the southern end of the basin, and seasonal wetland/smartweed cocklebur patches in the northern swales.

The valley oak woodland community is characterized by a moderately dense canopy of valley oak with a predominantly herbaceous understory composed primarily of nonnative annuals. Occasional interior live oak (*Quercus wislizeni*), Fremont cottonwood, and sycamore (*Platanus racemosa*) trees are present, as well as scattered patches of Santa Barbara sedge (*Carex barbarae*), Himalayan blackberry (*Rubus armeniacus*) and poison hemlock (*Conium maculatum*). Wild oats grasslands are dominated by nonnative wild oat (*Avena fatua*), with a diverse mixture of mostly nonnative grasses and forbs. Black willow thickets are characterized by an open canopy of small, even-aged black willow trees with a perennial rye grass understory. The perennial rye grass fields are dominated or co-dominated by nonnative perennial rye grass and other nonnative herbs. The patch of cottonwood forest is dominated by Fremont cottonwood and includes black willow trees, scattered Himalayan blackberry shrubs, and Bermuda grass (*Cynodon dactylon*), chicory (*Cichorium intybus*), and white sweetclover (*Melilotus albus*) in the understory. Dominant species in the southern swales include stalked popcornflower (*Plagiobothrys stipitatus*), stinking chamomile (*Anthemis cotula*), and Bermuda grass, while the northern swales are dominated by dotted smartweed (*Persicaria punctata*) and/or rough cocklebur (*Xanthium strumarium*).

WILDLIFE

The American River corridor provides important habitat for resident and migratory wildlife in a landscape dominated by urban development. It serves as a critical pathway and connection to the Sacramento River corridor for migratory and dispersing fish and wildlife species. The value of habitat on and adjacent to the project site is somewhat limited by nearby urban development and associated roadways, walkways, and bike trails. However, riparian and aquatic habitat along the NEMDC/Steelhead Creek and grassland and riparian habitat west and south of the site are likely to be used by a relatively high diversity of species.

Several resident bird species were observed during the field survey, including California gull (*Larus californicus*), Anna's hummingbird (*Calypte anna*), northern flicker (*Colaptes auratus*), bushtit (*Psaltriparus minimus*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), and yellow-billed magpie (*Pica nuttalli*). Additional species are likely to use the area during the migration and breeding seasons. Trees and shrubs on and adjacent to the site provide suitable nesting habitat for a number of species, and old swallow nests were observed on the underside of the Northgate Boulevard bridge over the NEMDC/Steelhead Creek. Native species

Source: adapted by AECOM in 2015

Exhibit 3.4-1. Habitat Map

that have been known to or are expected to nest in this portion of the American River corridor include resident and migratory species, such as Swainson's hawk (*Buteo swainsoni*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), Nuttall's woodpecker (*Picoides nuttallii*), western kingbird (*Tyrannus verticalis*), American crow, western scrub-jay, tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), bushtit, American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Haemorhous mexicanus*).

Several species of common amphibians, reptiles, and small- and medium-sized mammals could occur on or adjacent to the project site, although the diversity of species in these groups is likely to be much lower than the avian species. In addition, burrowing mammals would largely be restricted to higher ground along the perimeter of the site that is not subject to flooding, and no evidence of California ground squirrel (*Otospermophilus beecheyi*) was observed during the field survey. Species documented during the field surveys or anticipated to occur in the vicinity include bullfrog (*Lithobates catesbeianus*), western toad (*Anaxyrus boreas*), red-eared slider (*Trachemys scripta elegans*), western fence lizard (*Sceloperus occidentalis*), gopher snake (*Pituophis catenifer*), California vole (*Microtus californicus*), California deermouse (*Peromyscus californicus*), Botta's pocket gopher (*Thomomys bottae*), Audubon's cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), raccoon (*Procyon lotor*), and North American beaver (*Castor canadensis*).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources addressed in this section include those that are afforded consideration or protection under CEQA, California Fish and Game Code, California Endangered Species Act (CESA), Federal Endangered Species Act (ESA), Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Special-status Species

Special-status species include plants and animals in the following categories:

- species officially listed by the State or Federal government as endangered, threatened, or rare;
- candidates for State or Federal listing as endangered or threatened;
- taxa (i.e., taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in State CEQA Guidelines California Code of Regulations (CCR) Section 15380;
- species identified by CDFW as species of special concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local or regional planning documents; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR).

The CRPR system includes six rarity and endangerment ranks for categorizing plant species of concern. All plants with a CRPR are considered "special plants" by CDFW. The term "special plants" is a broad term used by CDFW to refer to all of the plant taxa inventoried in the CNDDB, regardless of their legal or protection status. Plants ranked as CRPR 1A, 1B, 2A, and 2B may qualify as endangered, rare, or threatened species within the definition of State CEQA Guidelines CCR Section 15380, and CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA documents.

The term "California species of special concern" is applied by CDFW to animals not listed under the Federal ESA or CESA, but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers and have known threats to their persistence.

An initial list of special-status species that could potentially occur on or adjacent to the project site, provided suitable habitat conditions are present, was developed through review of CNDDB (2014) and CNPS Inventory (2014) records and a list generated from the database of endangered species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS), Sacramento Office (USFWS 2014). These sources were queried for the Sacramento West U.S. Geological Survey 7.5-minute quadrangles, within which the project area is located, and the eight surrounding quadrangles (Sacramento East, Taylor Monument, Rio Linda, Citrus Heights, Carmichael, Clarksburg, Florin, and Elk Grove).

Most of the species included on the USFWS list and/or in the results of the CNDDB and CNPS database searches were eliminated from consideration because they are restricted to habitat conditions that are not present on or immediately adjacent to the project site and/or the site is outside of their current known distribution. For example, the project site does not provide suitable habitat for any special-status plant species that were evaluated, all of which are restricted to habitats such as vernal pools and similar seasonal wetlands, marshes and swamps, and tidally influenced habitats. However, as discussed further below, one special-status plant species was included in post-borrow restoration plantings. In addition, no blue elderberry (*Sambucus nigra* ssp. *cerulea*) shrubs, the host plant of valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), are present on or adjacent to the site, and giant garter snake (*Thamnophis gigas*) is unlikely to occur as aquatic habitat conditions for the species are poor along the lower reaches of the NEMDC/Steelhead Creek because of extensive riparian cover, immediately adjacent urban development, and rocky channel substrate.

Table 3.4-1 summarizes information on special-status species that were determined to have at least low potential to occur in the project vicinity, based on conditions observed during the field surveys and review of database occurrences and other information on species distributions. These species are discussed further in the subsequent sections.

Woolly Rose-mallow

Despite the lack of marsh habitat onsite or along adjacent portions of NEMDC/Steelhead Creek, woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*) is addressed in this analysis because there is some potential for it to persist in the restoration area. A total of 35 individuals of this perennial herb were planted during the initial restoration activities in 1997, and 14 individuals were present when success monitoring was last conducted in 2003. Some of these individuals may still occur, but they were unidentifiable when the wetland delineation and general biological field survey were conducted in January and February 2015.

Table 3.4-1. Special-status Species with Potential to Occur in or Adjacent to the Project Area					
Species	Status[1]			Habitat Associations	Potential for Occurrence in the Project Area
	Federal	State	CRPR		
Plants					
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–	–	1B.2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs; blooms June - September.	Low. Individuals were planted onsite during restoration in the late 90s, but the site does not currently support suitable habitat; none were found during the January and February 2015 field surveys, but individuals may not have been identifiable at the time.
Fish					
North American green sturgeon southern DPS *Acipenser medirostris*	T	SSC	–	Spawns in rivers with suitable gravel; rears in freshwater and estuarine habitats.	Moderate. Known to occur in the Sacramento River and could occasionally wander up NEMDC/ Steelhead Creek
Pacific lamprey *Entosphenus tridentatus*	SC	–	–	Streams, mainstem rivers, estuaries, and nearshore ocean waters.	Moderate. Could occur in the Sacramento and American Rivers and NEMDC/ Steelhead Creek.
River lamprey *Lampetra ayresi*	–	SSC	–	Streams, mainstem rivers, estuaries, and nearshore ocean waters.	Moderate. The project vicinity is within the species' known range and rearing and migratory habitat are present in the Sacramento and American Rivers, and potentially NEMDC/ Steelhead Creek.
Hardhead *Mylopharadon conocephalus*	SC	SSC	–	Adults occur in deep, clear pool and run habitats; juveniles occur in shallow water and along the shoreline of stream reaches.	Moderate. Likely to occur in the Sacramento and American Rivers; water quality in NEMDC/Steelhead Creek is unlikely to support year-round residency.
Central Valley steelhead DPS *Oncorhynchus mykiss*	T	–	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento and American Rivers and NEMDC/ Steelhead Creek.
Central Valley spring-run Chinook salmon ESU *Oncorhynchus tshawytscha*	T	T	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento River and was recorded (based on size) in a pond in the Site 18A basin in 1999.
Sacramento River winter-run Chinook salmon ESU *Oncorhynchus tshawytscha*	E	E	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento River and was recorded in a pond in the Site 18A basin in 1999.

Table 3.4-1. Special-status Species with Potential to Occur in or Adjacent to the Project Area					
Species	Status[1]			Habitat Associations	Potential for Occurrence in the Project Area
	Federal	State	CRPR		
Central Valley fall/late fall–run Chinook salmon ESU *Oncorhynchus tshawytscha*	SC	SSC	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento and American Rivers and was recorded in a pond in the Site 18A basin in 1999.
Sacramento splittail *Pogonichthys macrolepidotus*	–	SSC	–	Sloughs, lakes, rivers and estuaries with low to moderate current; inundated vegetation for spawning.	Moderate. Expected to occur in the Sacramento and American Rivers in wet years; could occur in NEMDC/Steelhead Creek.
Reptiles					
Northern western pond turtle *Actinemys marmorata*	–	SSC	–	Permanent or nearly permanent water bodies in various habitats, including ponds, marshes, rivers, streams, and ditches.	Moderate. NEMDC/Steelhead Creek provides marginally suitable aquatic habitat and adjacent open uplands in the American River corridor could provide suitable nesting habitat.
Birds					
White-tailed kite *Elanus leucurus*	–	FP	–	Nests in riparian zones, oak woodlands, and isolated trees; forages in grasslands and agricultural fields.	High. Adjacent grasslands likely provide suitable foraging habitat, and trees along the perimeter of and adjacent to the project site provide potential nest sites.
Swainson's hawk *Buteo swainsoni*	–	T	–	Nests in riparian forest and scattered trees; forages in grasslands and agricultural fields.	High. Adjacent grasslands likely provide suitable foraging habitat, and trees along the perimeter of and adjacent to the project site provide potential nest sites.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	T	E	–	Riparian forest with dense deciduous trees and shrubs.	Low. No current nesting populations occur in the region and onsite habitat quality is marginal, but migrating individuals could occasionally occur in the project vicinity.
Bank swallow *Riparia riparia*	–	T	–	Forages in a variety of habitats and nests in vertical banks or bluffs of suitable soil, typically adjacent to water.	Moderate. No suitable nesting habitat on or adjacent to the project site, but individuals from nest colonies along the lower Sacramento River could forage onsite.
Purple martin *Progne subis*	–	SSC	–	Nests in bridges in the Sacramento urban area and forages in adjacent open habitats.	Moderate. Not known to nest in Northgate Boulevard Bridge, but individuals from nest colonies elsewhere in the vicinity could forage onsite.

Table 3.4-1. Special-status Species with Potential to Occur in or Adjacent to the Project Area					
Species	Status[1]			Habitat Associations	Potential for Occurrence in the Project Area
	Federal	State	CRPR		
Least Bell's vireo *Vireo bellii pusillus*	E	E	–	Typically occurs in structurally diverse riparian habitat with a dense shrub layer.	Low. Project site does not provide suitable nesting habitat, and the subspecies has been largely extirpated from the Central Valley; individuals recently attempted to nest in the Yolo Bypass Wildlife Area and could occasionally occur in the project vicinity.
Song sparrow ("Modesto" population) *Melospiza melodia*	–	SSC	–	Nests and forages in dense vegetation in marsh, riparian forest and scrub, and along irrigation and drainage canals.	Low. Project site and adjacent areas provide marginal quality habitat, and the species is not known to nest in the project vicinity.

Notes: Bay-Delta = San Francisco Bay/Sacramento–San Joaquin Delta; CRPR = California Rare Plant Rank; DPS = distinct population segment; ESU = evolutionarily significant unit

[1] Status Definitions:

Federal Listing Categories

T = Threatened

E = Endangered

SC = Species of concern

– = No status

State Listing Categories

T = Threatened

E = Endangered

SSC = Species of special concern

– = No status

California Rare Plant Ranks

1B = Plants rare, threatened, or endangered in California and elsewhere

Extension:

.2 = Fairly endangered in California (20–80 percent of occurrences are threatened)

Sources: CNDDB 2014; CNPS 2014; USFWS 2014; based on data collected and compiled by AECOM in 2014 and 2015.

Fish

Nine special-status fish taxa are known or have potential to occur in NEMDC/Steelhead Creek. Four of these taxa are anadromous salmonids that begin life in fresh water but spend most of their lives in the sea, before returning to fresh water to spawn. These include three evolutionarily significant units of Chinook salmon (*Oncorhynchus tshawytscha*) and a distinct population segment of steelhead (*Oncorhynchus mykiss*). All of these taxa are known to occur in nearby reaches of the Sacramento River and could be present in the NEMDC/Steelhead Creek. Four of the taxa, Central Valley steelhead and winter-run, spring-run, and fall-/late fall-run Chinook salmon, were captured during sampling of ponded habitat on the project site in April 1999 (Jones & Stokes 1999). However, steelhead are unlikely to occur in the NEMDC/Steelhead Creek during summer months, when flows are low and water temperature is high.

Green sturgeon (*Acipenser medirostris*) and the two species of lamprey, Pacific lamprey (*Entosphenus tridentatus*) and river lamprey (*Lampetra ayresi*), are also anadromous. Green sturgeon spawn predominantly in

the upper Sacramento River and return to San Francisco Bay and nearshore marine waters to feed and mature. The lamprey species spend the majority of their lives in freshwater, returning to the sea for a relatively short time before re-entering fresh water to spawn. None of these species is known to occur in NEMDC/Steelhead Creek but habitat conditions may be suitable for them, depending on water quality and temperature, and they could occasionally wander upstream to the project area.

Hardhead (*Mylopharadon conocephalus*) is a freshwater species with a wide distribution in low- to mid-elevation streams in the Sacramento and San Joaquin river drainages. Sacramento splittail (*Pogonichthys macrolepidotus*) typically occur in brackish waters but move upstream into less-saline waters to spawn. Both of these species likely have low potential to occur in the NEMDC/Steelhead Creek, but they could be present when conditions are suitable, such as when clear, deep pools and low-velocity runs are available for hardhead and in wet years for splittail.

Northern Western Pond Turtle

NEMDC/Steelhead Creek provides marginally suitable aquatic habitat for northern western pond turtle (*Actinemys marmorata*), and uplands on the project site could provide suitable nesting habitat. The area is not anticipated to support a large population of pond turtles, because surveys conducted at various sites throughout the Sacramento River Basin indicate the species occurs primarily in relatively undisturbed foothill rivers and creeks or in reserves and other protected areas. Red-eared sliders are likely to occur in larger numbers in the area, because they are typically more common in urban areas and northern western pond turtle abundance is often low at sites with high red-eared slider densities (Thomson et al. 2010).

Birds

A number of special-status birds could occur on or adjacent to the project site. Two of these species, western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) and least Bell's vireo (*Vireo bellii pusillus*), have low potential to occur onsite, because they do not nest in the project vicinity, the area provides only marginally suitable habitat for them, and they would only occur during migration. Bank swallow (*Riparia riparia*) and purple martin (*Progne subis*) breed in the local region, but no suitable nesting habitat is present for them on or adjacent to the project site. Therefore, their presence onsite would be limited to foraging individuals that nest at nearby colonies.

The only special-status bird species with potential to nest on or near the project site are Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), and Modesto song sparrow (*Melospiza melodia*). Several Swainson's hawk and white-tailed kite nests have been documented in the project vicinity, primarily within the American River corridor. Potentially suitable nest trees are present along the perimeter of the project site, and grasslands to the west and southeast likely provide suitable foraging habitat. The project site may also provide some foraging habitat, although of less value due to flooding. Shrubby vegetation along portions of the perimeter of the project site and in areas adjacent to the site provides marginally suitable nesting habitat for song sparrow, and this species could forage throughout the site when it is not ponded and supports vegetation.

Sensitive Habitats

Critical Habitat

Critical habitat is a geographic area containing features determined by USFWS or National Marine Fisheries Service (NMFS) to be essential to the conservation of a species listed as threatened or endangered under the ESA. Critical habitat does not have to be occupied by that species at the time it is designated, but it may be considered necessary for the recovery of the species.

Critical habitat designated for Central Valley steelhead in 2005 includes portions of the Sacramento and American Rivers nearest to the project site, as well as the NEMDC/Steelhead Creek, immediately adjacent to the project site. Critical habitat designated for Central Valley spring-run Chinook salmon, also in 2005, includes the Sacramento and lower American rivers. Critical habitat for Sacramento River winter-run Chinook salmon was designated in 1993 and includes the Sacramento River.

Three units of critical habitat were designated for valley elderberry longhorn beetles when the species was listed as threatened in 1980. All three units are along the lower American River, within 10 miles of the project site. The nearest unit is within several hundred feet of the southeast corner of the site but is separated from the site by State Route 160.

Essential Fish Habitat

Section 305(b)(2) of the Magnuson Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires that essential fish habitat (EFH) be identified and described in Federal fishery management plans. EFH includes waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. Freshwater EFH for Pacific Coast salmon in the Central Valley includes waters currently or historically accessible to salmon, as described in Myers et al. (1998). EFH for Central Valley spring-run and Sacramento River winter-run Chinook salmon includes juvenile rearing habitat in NEMDC/ Steelhead Creek; EFH for Central Valley fall-/late fall-run Chinook salmon includes migration, holding, and rearing habitat in NEMDC/Steelhead Creek.

Other Habitats Protected under Federal and State Regulations

Under Section 404 of the Federal CWA, the U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into aquatic features that qualify as waters of the United States; wetlands that support hydrophytic vegetation, hydric soil types, and wetland hydrology may also qualify for USACE jurisdiction under Section 404 of the CWA. Under Section 401 of the CWA, the Central Valley Regional Water Quality Control Board (RWQCB) regulates discharge of dredged or fill material into waters of the United States to ensure such activities do not violate State or Federal water quality standards; the Central Valley RWQCB also regulates waters of the State, in compliance with the Porter-Cologne Act. In addition, all diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources is subject to the regulatory approval of CDFW pursuant to Section 1602 of the California Fish and Game Code.

Aquatic features on and adjacent to the project site qualify for protection as jurisdictional waters of the United States under Sections 404 and 401 of the CWA and waters of the State under the Porter-Cologne Act. NEMDC/ Steelhead Creek is considered a water of the United States and water of the State, and seasonal wetland habitat in

the basin swales is anticipated to be considered jurisdictional waters of the United States and/or waters of the State. Based on the wetland delineation conducted on January 7 and February 5, 2015, a total of 0.11 acre of relatively permanent waters and 1.46 acres of seasonal wetlands are present in the delineation study area. The delineation report is pending verification by the USACE. NEMDC/Steelhead Creek and associated riparian habitat also qualify for CDFW jurisdiction under Section 1602 of the California Fish and Game Code.

3.4.2 DISCUSSION

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS?

SPECIAL-STATUS PLANTS

Less than Significant with Mitigation Incorporated. The only special-status plant determined to have potential to occur on or adjacent to the project site is woolly rose-mallow. Although the project site does not support habitat typically considered suitable for this or any other special-status plant species, woolly rose-mallow was planted during restoration of the site in 1997, and some individuals may persist on-site. Such plants could be directly destroyed, if they are present in areas where excavation, grading, and other ground-disturbing activities would occur during project construction and revegetation. They could also be indirectly affected if present in areas adjacent to such activities. Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to adversely affect woolly rose-mallow. Aside from populations along the Sacramento River and the Deep-water Ship Channel and at Stone Lakes National Wildlife Refuge, known extant populations of wooly rose-mallow in the region are very rare. Therefore, loss of planted individuals that continue to survive onsite could be considered a substantial adverse effect on the local population and a potentially significant impact.

Mitigation Measure BIO-1: Conduct Pre-construction Survey for Woolly Rose-Mallow and Implement Impact Avoidance and Minimization Measures.

SAFCA shall implement the following measures to avoid and minimize adverse impacts to woolly rose-mallow.

a) Before construction activities begin, a focused survey will be conducted by a qualified botanist for woolly rose-mallow shrubs that may be present in or within 50 feet of areas where ground disturbance would occur. To the extent feasible, depending on timing of project implementation, surveys will be conducted during the blooming period for this species (June–September).

b) If woolly rose-mallow is detected, areas where the species occurs will be fenced for complete avoidance during project implementation, to the extent feasible.

c) If woolly rose-mallow is present in areas where disturbance cannot be avoided, a qualified botanist will assess the feasibility of salvaging and transplanting individuals as part of the revegetation component of the project. If such actions are deemed feasible, they will be implemented under the direction of a qualified botanist and in coordination with CDFW.

Timing: Before construction activities begin and during revegetation.

Responsibility: Sacramento Area Flood Control Agency.

Implementation of Mitigation Measure BIO-1 would reduce this impact to a less-than-significant level because it would avoid and minimize adverse effects on woolly rose-mallow.

SPECIAL-STATUS WILDLIFE

The proposed project has the potential to adversely affect several special-status wildlife known or with potential to occur in the project area, including eight fish taxa, one reptile species, and seven bird taxa, as discussed further below.

Fish

Less than Significant with Mitigation Incorporated. The portion of NEMDC/Steelhead Creek adjacent to the project site does not provide spawning habitat for any special-status fish, and potential rearing habitat is of marginal quality. However, Central Valley steelhead are known to pass through the project area en route to and from upstream spawning habitat. In addition, steelhead, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley fall-/late fall-run Chinook salmon were documented onsite when the basin flooded and trapping was conducted in 1999. Other species that occur in the Sacramento River also could occasionally wander up the NEMDC/Steelhead Creek and occur in the project area.

Project implementation would include grading and streambank alteration in the Site 18A basin and adjacent to NEMDC/Steelhead Creek, which could affect existing instream aquatic and shaded riverine aquatic (SRA) habitat. Approximately 6 acres of floodplain habitat would be graded or ripped and disked, and the NEMDC/ Steelhead Creek shoreline could be disturbed during culvert replacement and excavation of the outlet channel. Five trees of 12-inch or greater diameter at breast height (dbh) adjacent to the NEMDC/Steelhead Creek shoreline are within the areas where ground disturbance would occur and would be removed to facilitate project construction. These trees are generally located in upland areas but could provide a small amount of SRA habitat function during periods of high outflow. However, this impact is anticipated to be minor, because loss of this habitat is unlikely to substantially reduce the contribution of large woody material. Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to result in substantial adverse effects on floodplain or shoreline habitat.

Excavation, grading, and other construction activities could result in indirect adverse effects on special-status fish if they result in discharge of soil into NEMDC/Steelhead Creek. This could adversely affect water quality of aquatic habitat immediately adjacent to and downstream of the grading area. Water quality impacts could affect the physical health of fish, depending on the severity of the discharge. Soil and associated contaminants that enter receiving waters through stormwater runoff and erosion can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to fish and other aquatic organisms. These effects are unlikely to extend to the Sacramento River, approximately 2 miles downstream, or to the American River, which is approximately 1,000 feet from the closest portion of the project site and is only hydrologically connected during high flood stages.

Implementation of the proposed project would result in an overall enhancement of habitat for special-status fish. Construction of the proposed culvert would reduce the potential for stranding of juvenile Chinook salmon, steelhead, and other migratory fishes. Rearing habitat and overhead cover in the floodplain would be improved by planting seasonal wetland plants (e.g., sedges, rushes) and willow scrub. This would provide increased depth for protection from predation by birds and mammals, and the associated revegetation along the edges of the swales would create SRA and eventually large woody material for increased cover and protection from predatory fish. These actions would contribute to the recovery of special-status fish by improving floodplain connectivity and habitat conditions and reducing predatory fish habitat.

Despite the overall improvement in habitat quality and reduction in stranding potential, potential indirect adverse effects on water quality during construction activities could have a substantial adverse effect on special-status fish, if present in NEMDC/Steelhead Creek. Therefore, potential impacts on special-status fish are considered potentially significant.

Mitigation Measure BIO-2: Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek.

SAFCA shall implement the following measures to avoid and minimize disturbance to special-status fish in NEMDC/Steelhead Creek.

a) No grading work within the existing floodway will occur during the designated flood season (i.e., November 1 to April 15), and work will not begin until evaluation of upstream conditions indicate that inundation of the construction area is unlikely to occur.

b) A worker awareness training program will be conducted for construction crews before the start of construction activities and as needed when new personnel begin work on the project. The program will include a brief overview of sensitive fisheries and aquatic resources (including riparian habitat to be preserved) on the project site, measures to minimize impacts on those resources, and conditions of relevant regulatory permits.

c) Any in-water construction activities (though not currently anticipated) will be conducted during months when special-status fish species/sensitive life stages are least likely to be present or less susceptible to disturbance (e.g., July 1 to October 31).

d) All riparian vegetation that is not specified to be impacted within the grading area will be identified and fenced using orange construction fencing or similar materials. Sensitive habitat information will be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.

Timing: Before, during, and as needed after construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).

Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures BIO-2, GEO-1, and HYD-1 would reduce this impact to a less-than-significant level because SAFCA will provide worker awareness training, limit the timing of in-water construction activities, erect fencing to protect riparian vegetation, and implement grading and erosion control measures which will minimize adverse effects on special-status fish and water quality.

Northern Western Pond Turtle

Less-than-Significant Impact. The portion of the NEMDC/Steelhead Creek adjacent to the project site provides marginal-quality aquatic habitat for northern western pond turtle, and the project site could provide suitable nesting habitat and high-elevation upland areas for hibernation. However, if the species is present in the project area, it is unlikely to occur in large numbers, because of the proximity to urban development and high levels of human disturbance. Potential for direct injury or mortality of pond turtles is limited because construction activities would not occur during the hibernation period, when turtles are less mobile and more susceptible to direct impact, and it is unlikely an active nest would be present in areas subject to ground disturbance. Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to result in adverse effects on pond turtles. If adult pond turtles are present onsite during project activities, they would likely be able to move away from the disturbance area. In the unlikely event project activities result in death or injury of pond turtles, the number of individuals affected would likely be very low and would not have a substantial adverse effect on the species. Therefore, this impact would be less than significant, and no mitigation would be required.

Birds

Less than Significant with Mitigation Incorporated. The project site and vicinity provide suitable foraging and/or nesting habitat for seven special-status bird species—Swainson's hawk, white-tailed kite, western yellow-billed cuckoo, bank swallow, purple martin, least Bell's vireo, and Modesto song sparrow. Most of these species would only utilize the project site for foraging. Bank swallow and purple martin could forage over the site, if active nest colonies are present nearby; yellow-billed cuckoo and least Bell's vireo only have low potential to occur onsite and would only be present for brief periods during migration. Project activities are unlikely to substantially disrupt foraging activities of any of these species, because areas of similar habitat are present upstream and downstream along the American River corridor.

Swainson's hawks and white-tailed kites could use suitable nest trees along the perimeter of the project site, though neither species is known to have nested on or immediately adjacent to the site. Of the trees anticipated to be removed, only two are likely to be of a suitable size for nesting, particularly by Swainson's hawks, which tend to prefer larger trees. Therefore, there is little potential for direct removal of active nests. However, two Swainson's hawk nests have been documented in recent years within 0.5 mile of the project site. One white-tailed kite nest was documented nearby in 1974, and the species is likely to nest regularly in the area. Project activities would occur during the nesting season and could result in noise and visual disturbances that adversely affect active nests present nearby. Adverse effects of sufficient magnitude could result in nest abandonment, a reduction in the level of care provided by adults (e.g., duration of brooding, frequency of feeding), or forced fledging.

Modesto song sparrow could forage and nest in dense herbaceous and shrubby vegetation on the project site. Alternative habitat is present in the project vicinity, and habitat disruption during project implementation is unlikely to substantially disrupt this species. However, active song sparrow nests could be present in areas where vegetation would be cleared to facilitate culvert replacement, outlet channel excavation, basin grading, and planting.

Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to result in disturbance levels that would cause nest failure. However, culvert replacement, floodplain grading, and revegetation activities could result in relatively high disturbance levels and subsequent failure of active nests of special-status birds. Therefore, this impact would be potentially significant.

Mitigation Measure BIO-3: Conduct Pre-construction Surveys and Minimize Disturbance and Potential Loss of Active Nests of Special-Status Birds.

SAFCA shall implement the following measures to minimize disturbance and potential loss of active nests of special-status birds.

a) Focused surveys for Swainson's hawk and other nesting raptors will be conducted by a qualified biologist before on-site project activities begin. To the extent feasible, surveys for Swainson's hawk will follow guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). A minimum of one survey will be conducted no more than 14 days before beginning project activities that are conducted during the nesting season (March 15–August 31). Surveys for Swainson's hawk nests will include all accessible areas of suitable nesting habitat located within 0.25 mile of areas subject to project disturbance, and surveys for other raptors will include accessible suitable nesting habitat within 500 feet of project disturbance.

b) Surveys for Modesto song sparrow will include suitable habitat east of Northgate Boulevard and within up to 200 feet of areas of project disturbance, depending on the disturbance level. Surveys will be conducted within 7 days before on-site project activities begin in a given area during the migratory bird nesting season (March 1–August 31).

c) If active nests are found, appropriate buffers will be established and maintained around the nest sites to avoid nest failure resulting from project activities. The appropriate size and shape of the buffers will be determined by a qualified biologist and may vary depending on the species, nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity will begin within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS?

Less than Significant with Mitigation Incorporated. Construction of the new culvert is anticipated to require removal of up to 53 trees of native species, primarily valley oak. Most of these were planted by SAFCA as part of the restoration program following borrow extraction. As a result, the majority are small, including an estimated 38 trees with a dbh of less than 6 inches and an estimated 13 trees with a dbh of 6 to 15 inches. One large valley oak with a 24-inch dbh and a multi-trunk tree with a total dbh of 37 inches would also be removed. Some of these trees are protected by City and County tree ordinances, and CDFW may take jurisdiction over some or all riparian vegetation on the project site under Section 1602 of the California Fish and Game Code. Additional protected trees and riparian vegetation are present immediately adjacent to areas where excavation, grading, and other project activities that could inadvertently damage trees would occur. Therefore, this impact is considered potentially significant.

Mitigation Measure BIO-4: Avoid and Minimize Disturbance of Riparian Vegetation and Implement Restoration Plan to Compensate for Tree Loss.

SAFCA shall implement the following measures to avoid and minimize disturbance of riparian vegetation and trees.

a) If canopy and/or root pruning, cabling, or other corrective measures for preserved trees are necessary, such measures will be conducted as specified by a Certified Arborist and will conform to the pruning standards of the International Society of Arboriculture.

b) Ground disturbance activity, equipment, and vehicles will not encroach within 1 foot of the drip line of trees to be preserved, to the extent feasible. The dripline area will be protected with high visibility fencing or tape before any ground disturbance or movement or storage of heavy equipment and other vehicles occurs. All fencing/tape will be removed following construction and before revegetation plantings are installed.

c) Excavating within a distance of half the drip line beyond the drip line will be avoided whenever practicable. If necessary, any authorized fill or excavation within this area will be supervised by a Certified Arborist.

d) To prevent root tearing and mangling by heavy equipment, hand digging will be conducted around roots in the vicinity of major trees to be preserved before pruning of roots greater than 2-inch diameter. Severed roots larger than 2 inches in diameter will be pruned or trimmed and covered with earth as soon as possible.

e) If construction activities other than excavation are required within the dripline of preserved trees, a 6-inch layer of mulch or shredded wood material will be laid on top of the soil to protect the soil and roots (3/4-inch plywood may be used if mulch is not feasible). Mulch and/or plywood will be removed after construction is complete.

f) Removal of protected trees and other riparian vegetation (e.g., shrubs) will be compensated by planting appropriate species as part of the revegetation component of the project. Replacement

plantings will be provided in accordance with City and County ordinances. Other riparian vegetation will be compensated at a 1:1 replacement ratio, based on the acreage removed. Revegetation efforts will be implemented as described in the restoration plan that has been prepared for the project. This will ensure adequate plantings of appropriate species are installed, maintained, and monitored to meet replacement requirements and compensate for removal of protected trees and other riparian vegetation.

Timing: Before, during, and after construction and revegetation activities

Responsibility: Sacramento Area Flood Control Agency

Implementation of Mitigation Measure BIO-4 would reduce the potentially significant impact to a less-than-significant level because it would avoid and minimize adverse effects on trees and other riparian vegetation to be preserved and would ensure habitat loss is appropriately compensated.

c) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Mitigation Incorporated. A total of 1.46 acres of seasonal wetlands anticipated to qualify for protection under Section 404 of the CWA are present in swales in the northern portion of the Site 18A basin. These wetlands would be directly altered by grading, ripping, and disking to improve swale drainage and soil conditions for revegetation plantings. Although activities would include cut and fill of wetlands, these areas would continue to provide wetland values and functions of equal or greater value, and no loss of wetland habitat would occur. Therefore, this impact would not have a substantial adverse effect on Federally protected wetlands.

The wetland delineation identified 0.11 acre of relatively permanent waters in the portion of NEMDC/Steelhead Creek adjacent to where culvert replacement and outlet channel grading would occur. These activities are not anticipated to result in any direct disturbance of jurisdictional waters, but there is potential for indirect adverse effects if construction activities result in inadvertent discharge of soil into NEMDC/Steelhead Creek. Therefore, this impact is considered potentially significant.

Mitigation Measure: Implement Mitigation Measure BIO-2 (Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek).

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).

Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures BIO-2, GEO-1 and HYD-1 would reduce the potentially significant impact to a less-than-significant level because these measures would avoid and minimize indirect adverse effects on NEMDC/Steelhead Creek.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation Incorporated. A wildlife corridor is generally a topographical or landscape feature or movement area that connects two open-space habitat parcels that otherwise would be entirely fragmented or isolated from one another. A variety of fish and wildlife species are likely to move through NEMDC/Steelhead Creek and the American River corridors. Implementation of the proposed project is not anticipated to substantially interfere with movement of terrestrial species, because disturbance along NEMDC/Steelhead Creek would be limited to one side of the creek, allowing wildlife to continue to move along the northern bank, and wildlife movement along the American River would be able to continue through the extensive area between the project site and the river.

A small great blue heron (*Ardea herodias*) colony of five nests was documented in 2008 approximately 0.5 mile west of the project site. Because of the distance from the project site and high level of disturbance between the colony location and the project site (i.e., Northgate Boulevard), project activities would not result in disturbance of this nursery site. Based on the limited number of potential nest trees and relatively high disturbance levels on and adjacent to the project site, nest colonies are unlikely to occur close enough to the project site to be susceptible to project disturbance.

Overall, the project would improve fish movement, because it would reduce potential for migrating and rearing fish to become stranded in the basin when water levels recede. However, excavation, grading, and other construction activities could result in indirect adverse effects if they result in discharge of soil into the NEMDC/Steelhead Creek and disruption of fish movement. Therefore, potential impacts on fish movement are considered potentially significant.

> Mitigation Measure: Implement Mitigation Measure BIO-2 (Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek).
>
> Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).
>
> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures BIO-2, GEO-1, and HYD-1 would reduce the potentially significant impact to a less-than-significant level because these measures would avoid and minimize adverse effects on fish movement.

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

Less than Significant with Mitigation Incorporated. Trees protected by City and/or County policies and ordinances include certain native oaks and other large-diameter trees. A total of six valley oak trees with a dbh of 6 or greater that potentially qualify for protection under the County ordinance and one tree with a cumulative dbh of 37 inches that potentially qualifies for protection under the City ordinance would be removed to accommodate culvert replacement and outlet channel excavation. Additional trees could be pruned or otherwise damaged during project construction. These impacts could conflict with local tree preservation policies and ordinances. Habitat

loss is anticipated to be compensated by implementing the revegetation component of the project, but a restoration plan has not yet been finalized. Therefore, this impact would be potentially significant.

> Mitigation Measure: Implement Mitigation Measure BIO-4 (Avoid and Minimize Disturbance of Riparian Vegetation and Develop Restoration Plan to Compensate for Tree Loss).
>
> Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).

Implementation of Mitigation Measures BIO-4, GEO-1, and HYD-1 would reduce the potentially significant impact to a less-than-significant level because they would avoid and minimize adverse effects on protected trees to be preserved and would compensate for loss of trees that would be removed.

f) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

No Impact. The proposed project would not conflict with any provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or State HCP. Several such plans have been adopted or are in development in the region, including the Natomas Basin Habitat Conservation Plan, but the project site is not within the coverage area for this or any such plan. Therefore, no conflict exists, and no impact would occur. No mitigation would be required.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Cultural resource investigations for the proposed project did not identify any cultural resources either within or near the project area. The project area was originally surveyed in its entirety in 1993 by Cultural Resources Unlimited (1993) when it was being evaluated for use as a borrow site for levee repair projects within Sacramento County. This 1993 study did not find any historic or prehistoric resources. The area was resurveyed in 2015 by AECOM archaeologists, also with negative results. The project area is previously disturbed, having been used as a borrow site to provide up to 230,000 cubic yards of earthen fill material for SAFCA's North Area Local Project (NALP) levee improvements. In addition, no subsurface resources were identified during excavation activities to install the existing culvert in 1996. Based on a records search at the North Central Information Center (NCIC); a sacred lands search conducted by the Native American Heritage Commission (NAHC); and the results of pedestrian surveys and consultation with the Native American community (currently ongoing), the project site and surrounding area within 0.25 mile of the project site do not contain any previously recorded cultural resources (e.g., prehistoric sites, historic sites, or isolated artifacts).

3.5.1 DISCUSSION

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

No Impact. A substantial adverse change in the significance of a historical resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the California Register of Historic Resources or in a local register or survey that meets the requirements of PRC Sections 5020.1(k) and 5024.1(g). However, there are no historic properties located within the study area. Therefore, no adverse impacts to significant historical resources would occur, and no mitigation would be required**.**

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

No Impact. The project site has been subject to extensive disruption in the past, including excavation and removal of substantial volumes of borrow material. Thus, any archaeological resources, which may have existed there at one time, have likely been removed. Project activities would involve grading and some excavation within the Site 18A basin to a depth of approximately 3 feet. Excavation of the existing culvert would be approximately 20 feet deep and would primarily disturb soil excavated and backfilled during the 1996 culvert construction. Based on the extensive previous disruption of the site and the shallow nature of proposed project grading and excavation activities, archaeological resources are unlikely to be encountered during construction of the proposed project. Therefore, the proposed project is not expected to cause a substantial adverse change in the significance of an archaeological resource pursuant to the State CEQA Guidelines California Code of Regulations Section 15064.5. There would be no impact, and no mitigation would be required.

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

Less-than-Significant Impact. Based on a review of the *Geologic Map of the Sacramento Quadrangle* (Wagner et al. 1987), project-related earthmoving activities would occur in Holocene-age Basin Deposits. By definition, to be considered a unique paleontological resource, a fossil must be more than 11,700 years old. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Therefore, this formation is considered to be of low paleontological sensitivity and project-related earthmoving activities would have a less-than-significant impact on unique paleontological resources. No mitigation would be required.

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

Less-than-Significant Impact. As described in item b) above, the project site has been extensively disturbed and a substantial volume of original material was previously removed from the site. Due to the level of past disturbance on-site, it is not anticipated that human remains, including those interred outside of formal cemeteries, would be encountered during earth removal or ground disturbance activities associated with the proposed project. Therefore, this impact would be less than significant, and no mitigation would be required**.**

3.6 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

3.6.1 ENVIRONMENTAL SETTING

The Site 18A project is located in the Sacramento Valley, which is part of the Great Valley Geomorphic Province. Specifically, the site is within the American River Parkway on the south floodplain of NEMDC/Steelhead Creek near the confluence of NEMDC/Steelhead Creek and Bannon Slough. The Great Valley province consists of an elongated structural trough, approximately 50 miles wide and 400 miles long, which has received continual alluvial deposition since the Jurassic period. The sediments in the Great Valley vary between 3 and 6 miles in thickness and were derived primarily from erosion of the Sierra Nevada to the east, with lesser material from the Coast Ranges to the west. Based on a review of the *Geologic Map of the Sacramento Quadrangle* (Wagner et al. 1987), project-related construction activities would take place in Holocene alluvium basin deposits. The Holocene basin deposits within Site 18A consist of unweathered gravel, sand and silt deposited by present-day channels (the American River and NEMDC/Steelhead Creek) which drain the Sierra Nevada Mountain range. These deposits lie within the first low terraces flanking present-day stream channels, and historically formed natural levees along the main stem of the Sacramento River.

The proposed project is not located in a seismically active area. The Sacramento Valley has experienced relatively low seismic activity in the past and does not contain any Alquist-Priolo Earthquake Fault Zones (California Geological Survey [CGS] 2012). Numerous earthquakes of magnitude (M) 5.0 or greater have occurred on regional faults in the Coast Ranges, approximately 38–55 miles west of downtown Sacramento. The nearest known active (Holocene or Historic) fault trace to the project study area is Dunnigan Hills, approximately 25 miles northwest of downtown Sacramento (Jennings and Bryant 2010a, 2010b). The nearest zoned faults are listed in **Table 3.6-1** below.

Table 3.6-1. Active Regional Faults

Fault Name	Approximate Distance from Downtown Sacramento (miles)	Regional Location	Maximum Moment Magnitude	Slip Rate (mm/yr)
Dunnigan Hills	25	Western Sacramento Valley	N/A	N/A
Great Valley Fault Zone Segment 3	26	Margin between Sacramento Valley and Coast Ranges	7.1	1.25
Great Valley Fault Zone Segment 4	26	Margin between Sacramento Valley and Coast Ranges	6.6	1.25
Great Valley Fault Zone Segment 5	37	Margin between Sacramento Valley and Coast Ranges	6.7	1.5
Hunting Creek-Berryessa	38	Coast Ranges	7.1	6.0
Green Valley-Concord	40	Coast Ranges	6.8	5.0
Greenville Fault Zone (includes Clayton and Marsh Creek sections)	45	Coast Ranges	7.0	2.0
Mount Diablo Blind Thrust	47	Coast Ranges	6.7	2.0
West Napa	48	Coast Ranges	6.7	1.0

Notes: mm/yr = millimeters per year; N/A = not available

Sources: Jennings and Bryant 2010b, Working Group on California Earthquake Probabilities 2008:Supplemental Worksheets and Appendix A

As shown in **Exhibit 3.6-1**, the Laugenour loam soil series is the dominant map unit within the Site 18A project area, and the only soil type where construction activities would occur. The other soil type mapped within the project area is Columbia sandy-loam, which exists in the southern portion of the basin and is mostly associated with the bike trail berm. The relevant U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) soil characteristics are listed in **Table 3.6-2** (Soil Survey Staff 2014).

3.6.2 DISCUSSION

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

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42 [Bryant and Hart 2007].)

Source: NRCS SSURGO 2013, adapted by AECOM in 2015

Exhibit 3.6-1. Soil Types

Table 3.6-2. Soil Types and Characteristics					
Soil Type	Permeability[1]	Shrink-Swell Potential[2]	Wind Erobility Group[3]	Water Erosion Hazard[4]	Limitations for Shallow Excavations
Laugenour loam, partially-drained, 0-2 percent slopes	Moderate	Low	8	Slight	Moderate: wetness
Columbia sandy-loam, drained, 0-2 percent slopes	Moderately rapid	Low	7	Slight	Severe: cutbanks cave
Columbia sandy-loam, drained, 0-2 percent slopes, occasionally flooded	Moderately rapid	Low	7	Slight	Severe: cutbanks cave

Notes:

[1] Based on standard NRCS saturated hydraulic conductivity (Ksat) class limits; Ksat refers to the ease with which pores in a saturated soil transmit water.

[2] Based on percentage of linear extensibility. Shrink-swell potential ratings of "moderate" to "very high" can result in damage to buildings, roads, and other structures.

[3] The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

[4] Based on the erosion factor "Kw whole soil," which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

Source: NRCS 2013

Less-than-Significant Impact. Surface ground rupture along faults is generally limited to a linear zone a few yards wide. Since no active faults are mapped across the proposed project site, nor is the site located within an Alquist-Priolo Earthquake Fault Zone, surface fault rupture is unlikely (CGS 2012; Jennings and Bryant 2010a, 2010b). The nearest fault zoned under the Alquist-Priolo Act is the Great Valley Fault Zone Segment 3, approximately 23 miles away from Sacramento. Therefore, this impact would be less than significant, and no mitigation would be required.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. The intensity of ground shaking depends on the distance from the earthquake's epicenter to the site, the magnitude of the earthquake, soil conditions at the site, and the characteristics of the source. Design, construction, and maintenance of the new culvert must comply with the regulatory standards of the Central Valley Flood Protection Board; therefore, it is assumed that the design and construction of all bike trail berm modifications (including culvert replacement) would meet or exceed applicable design standards for static and dynamic stability, seismic ground shaking, liquefaction, subsidence, and seepage. Furthermore, the proposed project is not located in a seismically active area. For these reasons, project impacts would be less than significant, and no mitigation would be required.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Soil liquefaction poses a foundation hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Factors determining the liquefaction potential are soil type and consistency, the level and duration of seismic ground motions, and the depth to groundwater. Loose sands, peat deposits, and younger Holocene-age sediments are susceptible to

liquefaction, while older, well consolidated deposits of clays and silts in freshwater environments are generally stable under the influence of seismic ground shaking. Since the proposed project is not located in a seismically active area and construction activities would occur during the dry season, the liquefaction potential is considered to be low, and this impact would be less than significant. Therefore, no mitigation would be required

iv) Landslides?

Less-than-Significant Impact. A review of the CGS landslide map index (CGS 2012) indicates that no landslide hazard maps have been prepared for the Sacramento area. Because the proposed project would be located within a low gradient, relatively flat, area the potential for exposure to adverse effects from landslides would be less than significant with implementation of the proposed project. Therefore, no mitigation would be required.

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

Less than Significant with Mitigation Incorporated. A review of NRCS (2013) soil survey data indicates that soils within the project site are slightly susceptible to erosion by water and wind. Project implementation would involve construction activities, including excavation and grading for culvert replacement and modification of the floodplain swales. These activities would result in the temporary disturbance of soil and could potentially expose disturbed areas to summer wind and winter storm events. Soil disturbance during the summer as a result of construction activities could result in soil loss and loss of topsoil because of wind (aeolian) erosion. In addition, rain of sufficient intensity could dislodge soil particles from the soil surface. If the storm is large enough to generate runoff, localized erosion could occur. Therefore, impacts associated with construction-related erosion are considered potentially significant.

Mitigation Measure GEO-1: Prepare and Implement a Grading and Erosion Control Plan.

a) Before earthmoving activities commence, SAFCA shall prepare and implement a grading and erosion control plan. The grading and erosion control plan will be prepared and implemented before on-site grading activities begin. The plan will be consistent with the State's National Pollutant Discharge Elimination System permit, and will include site-specific grading associated with culvert replacement and restoration activities.

b) The aforementioned plan will include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures; a description of measures designed to control dust and stabilize disturbed soils within the construction site; and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include the use of berms, straw cover, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures GEO-1 and HYD-1 would reduce the impact from construction-related erosion to a less-than-significant level.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. The potential hazards associated with liquefaction and landslides are addressed in impacts iii) and iv) above. As indicated in **Table 3.6-1**, the Laugenour soil series has a low shrink-swell potential and excavation depth may be moderately limited due to wetness in some areas. However, groundwater monitoring wells in the vicinity of the Site 18A basin have reported that groundwater in the basin is typically greater than 40 feet below ground surface (bgs) (also see Section 3.9, "Hydrology and Water Quality," for a discussion on groundwater levels). Furthermore, during geotechnical studies in the basin conducted in 1995, no groundwater was encountered in any of the12 test pits that were dug throughout the site. These test pits ranged from 12.5 to 18.5 feet in depth from the original ground surface (i.e. the grade of the bike trail berm around the site).

Columbia sandy-loam also has low shrink-swell potential and contains less clay material than the Laugenour loam. Excavation depth can be severely limited because the Columbia sandy-loam tends to collapse. However, this soil is not present in the vicinity of the culvert replacement, and only exists along the vegetated bike trail berm in the southern portion of the basin. Since construction of the replacement culvert would occur solely in Laugenour loam during the dry months, soil shrink-swell potential is low, and groundwater levels are not shallow enough to interfere with construction activities, this impact would be **less than significant. Therefore**, no mitigation would be required.

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

Less-than-Significant Impact. Expansive soils shrink and swell as a result of change in moisture content. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. Based on soil survey data from the USDA NRCS (Soil Survey Staff 2014), soils within the project site have a low shrink-swell potential and do not contain highly expansive clay minerals (see **Table 3.6-1**). Therefore, this impact would be less than significant, and no mitigation would be required.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed project would entail replacement of a culvert and restoration of an existing wetland area. If restroom facilities are needed during construction, portable (non-discharging) restrooms would be used. No septic systems or alternative wastewater disposal systems would be required for the proposed project. Thus, no impact would occur, and no mitigation would be required.

3.7 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.7.1 ENVIRONMENTAL SETTING

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation (thermal heat) is absorbed by GHGs in the atmosphere; as a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth.

GHGs are present in the atmosphere naturally, released by natural sources, and formed from secondary reactions taking place in the atmosphere. GHG emissions associated with human activities are highly likely responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (Intergovernmental Panel on Climate Change 2013).

In November 2014, SMAQMD adopted GHG thresholds of significance for construction and operational emissions (SMAQMD 2014). These thresholds of significance, along with SMAQMD-recommended guidance for evaluating GHG emissions, are used in this analysis to evaluate the proposed project's GHG emissions.

3.7.2 DISCUSSION

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. Implementing the proposed project would generate temporary construction-related GHG emissions that would cease following completion of the proposed project. Construction emissions would be generated by vehicle engine exhaust from heavy-duty construction equipment, haul trips, and construction worker trips. The total duration of the construction project is temporary and short-term and expected to last approximately 2 months. As described in Section 3.3, "Air Quality," construction-related GHG emissions were modeled using CalEEMod and EMFAC2011. **Table 3.7-1** presents the proposed project's total construction-related GHG emissions.

Table 3.7-1. Proposed Project Unmitigated GHG Emissions	
Construction Phase	Annual MT CO_2e
Temporary Bike Trail Realignment	
Installation	3.79
Removal	0.59
Culvert and Approach Channel Construction	
Excavation	28.57
Install Culvert and Rip-Rap Replacement	31.43
Backfill and Grading	8.95
Habitat Enhancement	
Swale-Grading	1.55
Deep Ripping and Soil Improvements	3.41
Seeding Native Grass Mix	0.92
Installation of Riparian Plantings	2.31
Irrigation	0.00
Total Construction Emissions	**81.53**
SMAQMD Threshold	**1,100**

Note: MT CO_2e = metric tons carbon dioxide equivalent
Source: MGE Engineers 2015, compiled and modeling by AECOM 2015

As described above, SMAQMD has established quantitative significance thresholds for evaluating GHG emissions associated with construction projects in CEQA analyses. SMAQMD has identified construction projects that emit 1,100 MT CO_2e per year or greater to be significant (SMAQMD 2014).

As shown above in **Table 3.7-1**, the proposed project's construction-related GHG emissions resulting from the temporary bike trail realignment, culvert and approach channel construction, and habitat enhancement would not exceed SMAQMD's construction threshold of significance. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the physical environment. In the long term, woody species used in site revegetation would serve as a carbon sink. Therefore, the proposed project's construction-related emissions would have a less–than-significant impact, and no mitigation would be required.

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

Less-than-Significant Impact. Although implementing the proposed project would cause temporary construction-related GHG emissions, the project's intent, purpose, and function align with the goals of the Assembly Bill (AB) 32 Scoping Plan to protect against the detrimental effects of climate change. ARB's Scoping Plan includes measures that would indirectly address GHG emissions from construction activities, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of AB 32 that apply to construction-related activity, either directly or indirectly, are assumed to be implemented Statewide and would affect the

proposed project should those policies be implemented before construction begins. The proposed project's construction emissions would comply with any mandate or standards set forth by the Scoping Plan.

Neither SAFCA nor any other agency with jurisdiction over this project has adopted a climate change or GHG reduction plan with which the proposed project would conflict. As discussed previously, the proposed project would not emit construction-related GHGs at a level that would cause a significant impact on the environment and would not involve long-term operational emissions that would generate substantial GHG emissions following completion of the proposed project. Accordingly, the proposed project would not be expected to substantially conflict with existing California legislation and GHG reduction plans adopted to reduce Statewide GHG emissions. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions. This impact would be less than significant, and no mitigation would be required.

3.8 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

3.8.1 ENVIRONMENTAL SETTING

Site 18A consists of approximately 17 acres of land within the American River Parkway (**Exhibit 2-1**). As described in Section 2.1, "Project Location and Background," Site 18A was previously used as a borrow site in 1996. Following the 1996 excavation, the area was modified to function as a backwater floodplain basin for the Sacramento and American Rivers and restored to provide wildlife habitat. The site is periodically flooded when high water stages on the American and Sacramento Rivers cause water to backup into the NEMDC/Steelhead Creek then onto the project site via a culvert connecting the site to the creek or by overtopping the bike trail berm around the perimeter of the basin. Since being restored, the project site has been periodically monitored and managed by SAFCA as a habitat mitigation site.

The project site is located upstream from Discovery Park, immediately south of the Arden-Garden Connector and NEMDC/Steelhead Creek, and directly east of Northgate Boulevard. A paved American River Parkway bike trail extends along the top of a berm that surrounds and defines the project site. Land in the vicinity of the project site to the north, south, and west supports recreation and residential land uses. Homeless encampments, common occurrences within the American River Parkway, have also been observed within the vicinity of the project. To the east of the project site are a flood control levee and an industrial/commercial building complex that includes an indoor soccer arena, paper recycling facility, and an auto repair shop.

California Highway Patrol (CHP) Academy Airport, the closest airport to the site, is located approximately 4.5 miles to the west. The nearest educational facility, SETA Head Start, is located approximately 0.35 mile to the east of Site 18A.

HAZARDOUS MATERIALS

According to a 2004 habitat mitigation and monitoring report for the project site, the herbicide Garlon 4 (triclopyr) has been previously used to control herbaceous weeds on the site. The 2004 report also suggests that the use of Garlon 4 was discontinued in 2001 because of adverse impacts to native restoration plantings from herbicide drift (SAFCA 2005). Garlon 4 is classified as a hazardous chemical under Occupational Safety and Health Administration (OSHA) Hazard Communication Standard 29 Code of Federal Regulations 1910.12; however, it is not considered to be a human carcinogen, or to cause birth defects or adverse effects on the immune or nervous system (Dow AgroSciences 2002; 2006). Triclopyr, the active component in Garlon 4, is a common herbicide used to control invasive weeds and vegetation. The effect of triclopyr on human health and the environment is dependent upon how much triclopyr is present and the frequency of exposure. Triclopyr rapidly breaks down into non-hazardous components in about 90 days (Dow AgroSciences 2006). Therefore, residual triclopyr is not expected to occur at the site because the pesticide was last applied to the site in 2001.

AECOM searched several publicly available databases maintained under PRC Section 65962.5 (i.e., the “Cortese List”) to determine whether any known hazardous materials are present either within or immediately adjacent to the project area.

The State Water Resources Control Board (SWRCB) maintains the Geotracker database, an information management system for groundwater. Data on leaking underground storage tanks and other types of soil and groundwater contamination, along with associated cleanup activities, are part of the information that SWRCB must maintain under PRC Section 65962.5. A search of the Geotracker database indicated that Mells Cargo Supply, a leaking underground storage tank (LUST) cleanup site located at 1940 Railroad Drive, is approximately 1,000 feet east of the project site (SWRCB 2015). A release of gasoline to soil and water on the Mells Cargo Supply site was reported. Remediation of contaminated soil has been completed. An ozone injection system using six injection wells is planned for installation on the northeast side of the existing building for future treatment of petroleum hydrocarbons in groundwater. The full extent of impacts to groundwater have not yet been delineated; however, the plume appears to have migrated offsite in the direction of groundwater flow (north-northeast)—away from Site 18A (SWRCB 2014).

The Hazardous Waste and Substances Site List (the “EnviroStor” database) is maintained by the California Department of Toxic Substances Control (DTSC) as part of the requirements of PRC Section 65962.5. A search of the EnviroStor database indicated that there are no additional open, active cases of hazardous waste and substances sites either within or immediately adjacent to the project area (DTSC 2015).

A search of the EPA's Envirofacts database (which includes records maintained under the Comprehensive Environmental Response, Compensation, and Liability Act) indicated that there are no additional known open, active cases of hazardous material contamination either within or immediately adjacent to the project area (EPA 2015).

FIRE HAZARD

Wildland fires represent a substantial threat in California, particularly during the hot, dry summer months in areas where topography, land use and access, and heavy fuel loading contribute to hazardous conditions. Wildland fires may be started by natural processes, primarily lightning, or by human activities. The California Department of Forestry and Fire Protection (CAL FIRE) has established a fire hazard severity classification system to assess the potential for wildland fires. The zones depicted on CAL FIRE maps take into account the potential fire intensity and speed, production and spread of embers, fuel loading, topography, and climate (e.g., temperature and the potential for strong winds). The project site is located within a Local Responsibility Area (LRA), for which CAL FIRE is required to delineate two hazard severity zones: very high, and non-very high fire hazard severity zones. The CAL FIRE maps show that the project site is located in a non-very high fire hazard severity zone (CAL FIRE 2008).

Although the project area is not currently designated within a very high hazard severity zone, periodic wildfires occur within the American River Parkway (American River Parkway 2008). In 2014, there were at least 24 fires within the parkway, including one located along the eastern side of Site 18A, that collectively burned more than 200 acres. The cause of the fires was due to very dry conditions and human activities, including outdoor cooking and arson (Sacramento Bee 2014). Various policies addressing public safety, firebreaks, vegetation management, and prohibited activities have been established as part of the American River Parkway Plan to help manage the risk of fires within the American River Parkway (American River Parkway 2008). See Section 3.14, "Public Services," for detailed information about fire protection services provided by the City of Sacramento.

EMERGENCY VEHICLE ACCESS

Emergency vehicle access is provided throughout the American River Parkway via parking areas, service roads, levee crowns, bicycle trails, and pedestrian paths (American River Parkway 2008).

3.8.2 DISCUSSION

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

Less-than-Significant Impact with Mitigation Incorporated. Construction of the proposed project would involve the incidental transport and use of common construction materials such as oils, lubricants, and fuels, as well as specific materials for culvert replacement work, such as concrete. Construction activities would occur within the American River Parkway adjacent to sensitive habitats including NEMDC/Steelhead Creek. DTSC has primary regulatory authority for enforcing hazardous materials regulations. State hazardous waste regulations are contained primarily in Title 22 of the California Code of Regulations. The California Occupational Health and Safety Administration has developed rules and regulations regarding worker safety around hazardous and toxic substances. However, handling and use of hazardous materials during construction in areas with high recreational

use and sensitive habitats could result in the exposure of workers, the recreating public, and the environment to hazardous materials. Therefore, this impact during construction would be potentially significant.

Following construction, weeds may be managed or suppressed with selected systemic herbicides (depending on field conditions and season). As discussed in the project description, any herbicides would be applied according to the label, in accordance with applicable Federal and State laws, including those pertaining to herbicide application in or near wetlands. Because herbicides would only be used periodically with limited application, and herbicides would be applied in compliance with applicable regulations, the potential to expose workers or nearby users of the American River Parkway to herbicides would be less than significant.

> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

With implementation of Mitigation Measure HYD-1, any potentially significant impacts from exposure to hazardous materials during construction would be reduced to a less-than-significant level because a storm water pollution prevention plan (SWPPP) or storm water management plan (SWMP) that would (1) include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, (2) identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent, and materials available to clean up, hazardous material and waste spills, and (3) identify emergency procedures for responding to spills, would be prepared and implemented.

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

Less-than-Significant Impact with Mitigation Incorporated. The volume of hazardous materials used or stored onsite during construction would be relatively low. The herbicide, Garlon 4, has been reportedly used on the property in the past. Because the herbicide rapidly breaks down in the environment, the presence of hazardous components in soils or on vegetation with the potential to be released during construction is also highly unlikely. Furthermore, Federal, State, and local hazardous materials regulations have been specifically designed to reduce the risk of accidental spills to the maximum extent practicable. However, handling and use of hazardous materials during construction in areas with high recreational use and sensitive habitats could result in the exposure of workers, the recreating public, and the environment to hazardous materials. Therefore, this impact during construction would be potentially significant.

As described in 3.8.2(a) above, operations and maintenance activities would include the use of herbicides to control weeds on the project site. However, herbicides would not be stored at the site and would be used only periodically with limited application in accordance with applicable regulations. Therefore, the impact related to herbicide use during maintenance activities would be less than significant.

> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

With implementation of Mitigation Measure HYD-1, any potentially significant impacts from exposure to hazardous materials as a result of accidental release and/or spills during construction would be reduced to a less-than-significant level.

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

No Impact. There are no existing or proposed schools within one-quarter mile of the project area. Thus, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact. A search of publicly available databases maintained by SWRCB (2015), DTSC (2015), and the EPA (2015) indicated that there is one LUST site, Mells Cargo Supply, approximately 1,000 feet east of the project site. Groundwater at the site has been impacted by petroleum hydrocarbons and a remediation system is planned for installation. The depth to water at the site and the full extent of impacts to groundwater have not yet been delineated; however, the plume appears to have migrated offsite in the direction of groundwater flow (north-northeast) —away from Site 18A (SWRCB 2014). Based on a review of available information, the distance and the upstream location of Site 18A from the LUST site, groundwater beneath Site 18A or surface water within NEMDC/Steelhead Creek would not be affected. Therefore, this impact would be less than significant, and no mitigation would be required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact. There are no public or private airports within 2 miles of the project area. Thus, no impact would occur, and no mitigation would be required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. As discussed in item e) above, **t**here are no public or private airports within 2 miles of the project area. There would be no impact, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed construction of the project would entail a small number of temporary and short-term commute trips on local or regional roadways by construction workers to and from the project site. The bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would be closed to the public during construction. The bike trail along the south and west sides of the embankment and approximately 280 feet of bike trail that extends from the southeast corner of the embankment around Site 18A to the crossing at Del Paso Boulevard would remain open to the public. However, the 280 feet of bike trail would also be used by haul trucks entering and exiting Site 18A during construction. Project operation would not entail additional commute trips on local or regional roadways, nor would it alter any designated emergency access routes. Given the small number of trips on local or regional roadways and the establishment of an alternate bike path route during project construction, any impacts to emergency response plans, routes or vehicle access are considered to be less than significant. Therefore, no mitigation would be required.

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less-than-Significant Impact with Mitigation Incorporated. Although CAL FIRE (2008) has determined that the areas where project-related activities would occur are not within a very high fire hazard severity zone, fires within the American River Parkway are known to occur in grasslands, brush, and areas with dense thickets of non-native vegetation and trees. Most of the project-related construction work would occur during the fall months when hot and dry conditions would enable rapid spread of fires. Construction equipment can emit sparks that could ignite fires, thereby exposing people or structures to a significant risk of loss, injury, or death. Therefore, construction activities would have a potentially significant impact.

Mitigation Measure HAZ-1: Prepare and Implement a Construction Fire Prevention Plan.

A fire prevention plan will be prepared and implemented by SAFCA or prepared by the construction contractor for review and approval by SAFCA in coordination with the appropriate emergency service and/or fire suppression agencies of the applicable local or State jurisdictions before the start of any construction activities. The plan will describe fire prevention and response methods, including fire precautions, requirements for spark arrestors on equipment, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. When heavy equipment is used for construction during the dry season, a water truck shall be maintained on the construction site. Materials and equipment required for implementation of the plan will be available on the construction site. Training will be provided to all construction personnel regarding fire safety, and all personnel will be made familiar with the contents of the plan before the start of construction activities.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Implementation of Mitigation Measure HAZ-1 would reduce the potentially significant impact associated with creation of wildland fire hazards during project construction to a less-than-significant level because a fire prevention plan would be prepared and implemented.

Implementation of the proposed project would involve enhancing existing riparian and willow scrub vegetation on the project site with additional plants, which would result in a small increase in the density of vegetation at specific locations on the project site. Maintenance activities, including plant irrigation, weed control (mowing, hand weeding, and herbicide application), and debris removal would be performed for the first five years as part of the project. The site would also be managed in accordance with polices in the American River Parkway Plan. Because the project site would be maintained for the first 5 years and then managed in accordance with policies in the American River Parkway Plan that address fire risk and vegetation management, the small addition of vegetation is not considered to substantially increase fire risk. Thus, the impact associated with project operation would be less-than-significant.

3.9 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 ENVIRONMENTAL SETTING

SURFACE WATER

Site 18A is located within the American River Parkway and is just upstream of the NEMDC/Steelhead Creek confluence with the Sacramento River near the Discovery Park boat launch facility (see **Exhibit 2-1**). The project site lies adjacent to the NEMDC/Steelhead Creek south bank, and consists of seasonal wetland and seasonally flooded riparian habitat. In 1996, approximately 230,000 cubic yards of soil was removed from Site 18A for

constructing levee embankments as part of the NALP levee improvements. The area was graded and planted by SAFCA to support riparian floodplain and seasonal wetland habitat. Water surface elevations greater than 10 feet in the Sacramento and Lower American River cause NEMDC/Steelhead Creek to backup and overflow into Site 18A through the culvert that connects NEMDC/Steelhead Creek to the Site 18A basin, and at higher stages, overtopping the surrounding low berm/bike trail embankment surrounding the Site 18A basin occurs. When flooded, juvenile Chinook salmon, steelhead, and other fishes have been known to use Site 18A as foraging and rearing habitat.

NEMDC/Steelhead Creek is a human-made, leveed drainage canal that extends for approximately 13 miles from Sankey Road in the north southward to its confluence with the Sacramento River (**Exhibit 3.9-1**). Along with the Pleasant Grove Creek Canal (PGCC) West Levee, the NEMDC/Steelhead Creek West Levee forms the easterly boundary of the Natomas Basin. The NEMDC/Steelhead Creek East Levee begins approximately 700 feet north of Main Avenue and extends southward to its connection to the American River North Levee near State Route 160. The NEMDC/Steelhead Creek East Levee protects the Robla and North Sacramento communities.

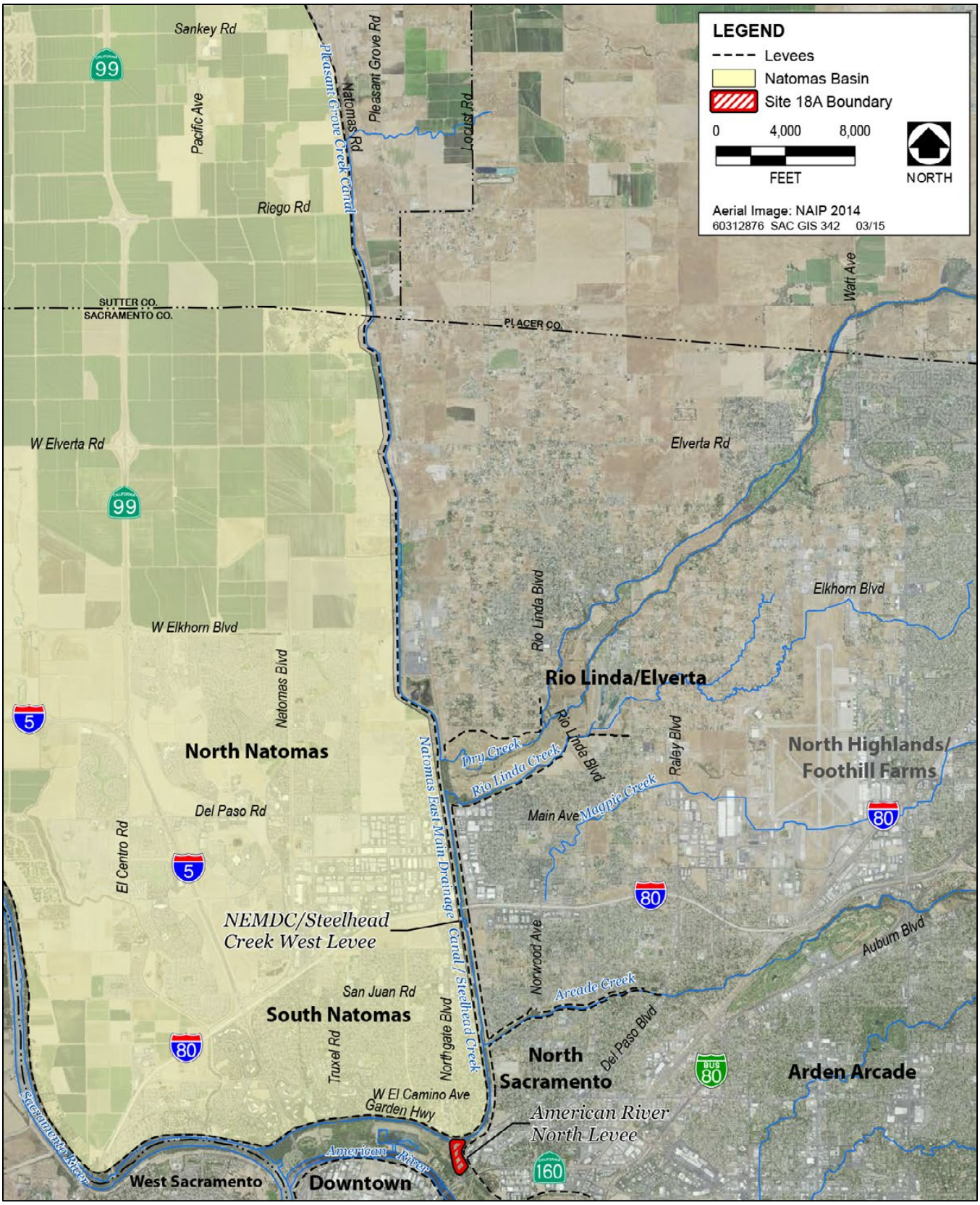
The watershed of NEMDC/Steelhead Creek comprises approximately 180 square miles of land in the greater Sacramento metropolitan area, which includes significant portions of the Natomas area, northeastern Sacramento County, southern Placer County, and a small portion of Sutter County (see **Exhibit 3.9-1**). NEMDC/Steelhead Creek receives runoff from agricultural areas of northern Sacramento County and a large, rapidly urbanizing metropolitan area, including Dry, Arcade, Robla and Magpie Creeks; and a large portion of the western Rio Linda and Elverta areas north of the confluence with Dry Creek up to Sankey Road. NEMDC/Steelhead Creek currently supports a diverse array of habitat types, including grasslands, seasonal wetlands, riparian forest, willow scrub, and valley oak woodland, as well as large stands of invasive shrubs (red sesbania) and floating aquatic weeds (water primrose and hyacinth).

The NEMDC/Steelhead Creek Watershed has a Mediterranean climate, with hot, dry summers and cool, wet winters. The majority of the precipitation falls between November and April. Mean annual rainfall for the Sacramento Metropolitan Area is roughly 21 inches.

Water quality in the Sacramento River watershed is regulated through the Central Valley RWQCB, *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan) (Central Valley RWQCB 2011). The Basin Plan sets regulatory limits on specific water quality parameters in the region, and provides guidance for particular land uses and their input to surface water quality; such as industrial discharge, wastewater treatment plants, agriculture and recreation. In addition, the Central Valley RWQCB reviews and approves National Pollutant Discharge Elimination System (NPDES) permits and CWA Section 401 water quality certifications, as applicable, for construction activities and project-related impacts to water quality.

GROUNDWATER

Site 18A is located in the North American Groundwater Subbasin, as defined in California Department of Water Resources (DWR) Bulletin 118 (DWR 2003). The North American Subbasin is approximately 548 square miles and lies within the eastern central portion of the Sacramento Valley Groundwater Basin. The western portion of the subbasin is a relatively flat floodway for the Bear, Feather, Sacramento and American Rivers, and several small east side tributaries. The general direction of surface drainage is west-southwest at an average grade of about 5 percent, and the general direction of groundwater flow is north-northeast.



Source: Adapted by AECOM in 2015

Exhibit 3.9-1. Lands Within and Near the North Sacramento NEMDC/Steelhead Creek Watershed

Two groundwater wells exist in the vicinity of the project area, which are primarily used for irrigation. The wells are located adjacent to each other, and approximately 2.5 miles directly east of Site 18A, near Erikson Industrial Park and Interstate Business 80 (Capital City Freeway). As of March 2014 water levels in the wells were measured to be approximately 62 and 52 feet bgs. Since 2000 the water levels in these wells have ranged from approximately 63 to 84 bgs and 49 to 72 bgs, respectively (DWR 2014).

3.9.2 DISCUSSION

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

Less-than-Significant Impact with Mitigation Incorporated. Both direct and indirect discharges associated with ground-disturbing construction activities for the proposed project could cause surface water to become contaminated by soil or construction-related substances. The proposed activities include grading and earthmoving associated with culvert replacement and wetland restoration within Site 18A. These activities could temporarily impair water quality should disturbed material, petroleum products, or construction-related wastes be discharged into NEMDC/Steelhead Creek, or onto the ground where they could be carried into receiving waters. Accidental spills of construction-related substances such as oils and fuels could contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on several factors: the tendency toward erosion of soil types encountered, soil chemistry, types of construction practices, extent of the disturbed area, duration of construction activities, proximity to receiving water bodies, and sensitivity of those water bodies to construction-related contaminants.

Although soils that could be affected by project activities only have a slight water erosion hazard and a low susceptibility to wind erosion (see **Table 3.6-2** in Section 3.6, "Geology and Soils"), bare soil would be exposed to wind and water erosion during site grading and excavation activities. If precautions are not taken to contain sediments, construction activities could produce sediment laden storm runoff that would degrade water quality. These activities could result in the exposure of soil or construction materials to rain or wind, resulting in short-term adverse water quality impacts. Construction activities would take place during the dry season so that dewatering of the site would not be required and impacts to water quality from erosion and stormwater runoff caused by flooding within Site 18A in response to high water levels in NEMDC/Steelhead Creek and ponding from storm events would be unlikely.

Restoration-related grading activities would occur primarily in the floodplain of NEMDC/Steelhead Creek, which is fairly isolated as it is surrounded by berms that provide a foundation for the American River Parkway bike trail. Deep ripping and swale grading for restoration, and grading for and replacement of the culvert that connects the floodplain to NEMDC/Steelhead Creek could potentially impact water quality should sediment, petroleum products or other construction waste enter the creek or penetrate into the groundwater. Therefore, this impact would be potentially significant.

> Mitigation Measure HYD-1: Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices.
>
> During the development of improvement plans, SAFCA will consult with the Central Valley RWQCB and Sacramento County. The purpose of the consultation will be to acquire the regulatory approvals necessary to obtain a CWA Section 401 Water Quality Certification, and any other necessary waivers under the Porter-Cologne Water Quality Control Act.

SAFCA will also prepare and implement the appropriate SWPPP or SWMP to prevent and control pollution and to minimize and control runoff and erosion. The SWPPP or SWMP will identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the BMPs that will be employed to control pollutant discharge. Construction techniques that will be identified and implemented to reduce the potential for runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP or SWMP will include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/ wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking and dust generation by construction equipment. No disturbance of surfaces will occur between October 15 and April 15 without erosion control measures in place.

The SWPPP or SWMP will also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and will identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP or SWMP will also identify emergency procedures for responding to spills.

The BMPs presented in either document shall be clearly identified and maintained in good working condition, with sufficient backup stock on-site during all site work and construction activities. The construction contractor will retain a copy of the approved SWPPP or SWMP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the Central Valley RWQCB, if necessary.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Implementing Mitigation Measure HYD-1 would reduce the potentially significant impact related to violation of water quality standards or waste discharge requirements to a less-than-significant level because a SWPPP or SWMP would be prepared and implemented consistent with permit requirements that would prevent and control pollution and minimize and control runoff and erosion.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Less-than-Significant Impact. The proposed project would not require the use of groundwater or substantially interfere with groundwater recharge. The proposed project is located within an area where groundwater is of a moderate depth (greater than 40 feet) and soils are low to moderately permeable. It may be an area of recharge on a seasonal basis when the basin is flooded for extended periods of time during the wet season. However, surface hydrology would continue to be controlled by the water surface elevation of NEMDC/Steelhead Creek. The project would involve ripping to a depth of approximately 3 feet in the weakly cemented soil layers in the bottom

of the basin in order to improve soil conditions for the revegetation and habitat enhancement efforts, but the shallow restrictive layer is up to 6 feet thick and exists between the soil surface and groundwater reserves. Project-related changes would have little to no effect on groundwater infiltration. No new development of impermeable surfaces (such as pavement or buildings) is proposed. Project features would not interfere with the overall movement of groundwater to and from NEMDC/Steelhead Creek or the American River. Therefore, groundwater supplies and groundwater recharge capability would likely not be affected, and the impact would be less than significant. No mitigation would be required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

Less-than-Significant Impact. The channel of NEMDC/Steelhead Creek would not be altered or otherwise impacted during construction activities, or as a result of the existence of the new culvert. The new arch culvert would be installed in the same location as the existing culvert. Flooding and receding of waters into and out of the basin is and would continue to be controlled by the water surface elevation of NEMDC/Steelhead Creek.

Cut-and-fill grading of the existing channels within Site 18A during habitat enhancement efforts would improve drainage from the site in order to prevent fish stranding by minimizing ponding in isolated areas as floodwaters recede from the site, and by improving the overall connectivity of the floodplain with NEMDC/Steelhead Creek. Attraction flows to facilitate fish migration would be provided by grading the basin swales and creating channels with a flow line to direct flows to the culvert and direct fish out of the basin as the stream flows recede. Connectivity and drainage would be improved by slightly lowering (less than 1 foot) the culvert's invert elevations to prevent ponding, and fish stranding, at the inverts. The invert elevation is approximately 10.9 feet on the basin side and 9.7 feet on the NEMDC/Steelhead Creek side of the existing culvert. Whereas, the invert elevation of the new culvert would be approximately 10.0 feet on the basin side and approximately 9.0 feet on the NEMDC/Steelhead Creek side with a flow line along the bottom of the culvert shaped at a 0.5 percent gradient toward the NEMDC/Steelhead Creek to discourage ponding of water in the Site 18A basin.

The proposed new culvert would also be larger (wider at the base and taller) and have a larger capacity than the existing culvert. Although the pattern of drainage into NEMDC/Steelhead Creek would not be substantially altered, the Site 18A basin would begin to flood at slightly lower NEMDC/Steelhead Creek water surface elevations, and the larger culvert would convey water at a higher volume of flow. Conversely, water would recede more quickly, controlled by the NEMDC/Steelhead Creek water surface elevation rather than the outlet capacity of the existing culvert. Therefore, discharge into and out of the basin during flooding and recession of flood waters would be more responsive to changes in the NEMDC/Steelhead Creek water surface elevation. Discharge would be directly related to the rate that the water surface elevation in NEMDC/Steelhead Creek raises and lowers. However, the low gradient slope (0.5 percent) of the culvert, its greater cross-sectional area, and an increase in roughness provided by the riprapped culvert bottom would reduce high velocity flows from scouring and eroding the basin channels, culvert inverts, and NEMDC/Steelhead Creek banks.

Because the velocity of drainage flow from Site 18A into NEMDC/Steelhead Creek would not increase, it would not result in scour, sheet flow, or other types of erosion. Construction of the proposed project would not alter the existing drainage pattern other than improving the responsiveness to NEMDC/Steelhead Creek. It would improve the topographical gradient and reduce potential fish stranding areas. Since the drainage pattern would remain the same, and the proposed project would not alter the course of a stream or river in a manner that would result in

substantial erosion or siltation, on- or off-site, this impact would be less than significant. No mitigation would be required.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

Less-than-Significant Impact. See discussion in c) above. The inverts of the new arch culvert would be no more than 1 foot lower than their current elevation. The invert elevation on the basin side of the existing culvert is 10.9 feet; therefore, water currently does not begin to fill the basin until the water surface elevation of the Sacramento River at the I Street Bridge is approximately 10.4 feet. The invert on the basin side of the new culvert would be approximately 10 feet so that water from NEMDC/Steelhead Creek would begin to fill the basin and flood the habitat at a lower water surface elevation (approximately 9.5 feet at the I Street Bridge); therefore, the basin would fill sooner than the existing culvert allows. This would increase the frequency of flooding within the basin which would help improve rearing habitat for fish and alleviate conveyance pressure on NEMDC/Steelhead Creek during moderate river stages. During higher stages and floods, the basin and its surrounding berms are well below the water stage and surrounding NEMDC West and NEMDC East levee crowns, and the project would have no effect on NEMDC/Steelhead Creek or American River conveyance.

The proposed project would not result in increased off-site flooding, such that the volume of the basin and its overall flood storage capacity would not be altered by the proposed project. In fact, the larger-sized culvert would be more responsive to fluctuations in the water surface elevation of NEMDC/Steelhead Creek for a wider range of flows. This would improve the ability of the basin to effectively act as an overflow floodplain to NEMDC/Steelhead Creek .

In conjunction with swale grading activities, which would deepen the swales by less than 1 foot in the northernmost part of the basin near the culvert, creek-floodplain connectivity, and frequency and duration of flood events would be improved. These improved hydrologic interactions would likely lead to more successful revegetation and habitat enhancement efforts, and thus would provide better habitat as the site matures. Overall, the proposed project would increase the availability of the site to flooding; thereby improving habitat conditions.

Construction of the proposed project would beneficially increase seasonal on-site flooding in order to restore and improve existing habitats; however, the proposed project would not alter existing drainage patterns other than the speed of responsiveness to NEMDC/Steelhead Creek during moderate flows, nor would it increase runoff in a manner that would result in off-site flooding, therefore, this impact would be less than significant. No mitigation would be required.

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

Less-than-Significant Impact. The NEMDC/Steelhead Creek is a drainage canal whose waters have been interacting with the Site 18A basin since the excavation of borrow material and installation of the culvert in1996. The Site 18A basin can hold a small fraction of the total NEMDC capacity, and the volume of the basin would remain unchanged. Water levels in the basin are controlled by water levels in NEMDC/Steelhead Creek, and when NEMDC/Steelhead Creek is experiencing high flows or flood stages, the basin would be flooded. Furthermore, no storm drainage or municipal infrastructure would be affected by the proposed project. For these

reasons, the proposed project is not anticipated to substantially increase the amount of surface runoff in a manner that would exceed the capacity of existing or planned storm water drainage systems; therefore, this impact would be less than significant, and no mitigation would be required.

f) Otherwise substantially degrade water quality?

Less than Significant with Mitigation Incorporated. See discussion in a) above.

> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

Implementation of Mitigation Measure HYD-1 would reduce the construction-related impacts associated with water quality degradation to a less-than-significant level by 1) preventing discharges of pollutants to a surface water or groundwater, and 2) identifying and maintaining the appropriate BMPs to prevent erosion and subsequent sedimentation during construction of the proposed project. Upon completion, the proposed project would not result in wastewater discharges or other point-source discharges subject to waste discharge requirements. Furthermore all disturbed areas would be promptly revegetated to stabilize soils and initiate restoration and enhancement activities.

g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The proposed project would include replacing an existing culvert, restoring ecosystem function of the floodplain habitat, and providing ecosystem functional lift. The proposed project would not include, or indirectly cause, construction of any housing or alteration of flood protection levees. Therefore, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project is located within the 100-year floodplain (**Exhibit 3.9-2**). The project would replace the existing culvert in the same location, and the replacement culvert would be wider and taller in order to enhance fish passage and facilitate exchange of flows. The replacement culvert is designed to allow water to back up more quickly and earlier into Site 18A during moderately high flow events in NEMDC/Steelhead Creek, and unimpededly flow out of the basin when floodwaters recede. Flows in NEMDC/ Steelhead Creek and the NEMDC/Steelhead Creek channel, itself, would not be impeded or redirected. In support of a Central Valley Flood Protection Board (CVFPB) encroachment permit application for the project, a hydraulic analysis was conducted. The analysis determined that the culvert would encroach less than 1% into the conveyance area of the American River floodway, would be well below the design water surface elevation, and would not significantly affect floodway conveyance (MBK, 2015). No new structures are proposed as part of the proposed project. This impact would be less than significant, and no mitigation would be required. See items c) and d) above for additional information.

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less-than-Significant Impact. The proposed project is not located in a dam inundation zone, and would not result in disturbance to flood protection levees. The existing culvert that would be replaced as part of the proposed

project is located within the existing American River Parkway bike trail embankment. The bike trail embankment surrounds the entire site (see **Exhibit 2-2** and **Exhibit 2-3** in Section 2, "Project Description"). Furthermore, Site 18A is in a floodway surrounded by levees established to provide flood protection to structures and the local communities (**Exhibit 3.9-1**). The project site lies between levees maintained by Reclamation District No. (RD) 1000 and the American River Flood Control District, and the NEMDC/Steelhead Creek channel is maintained by DWR .

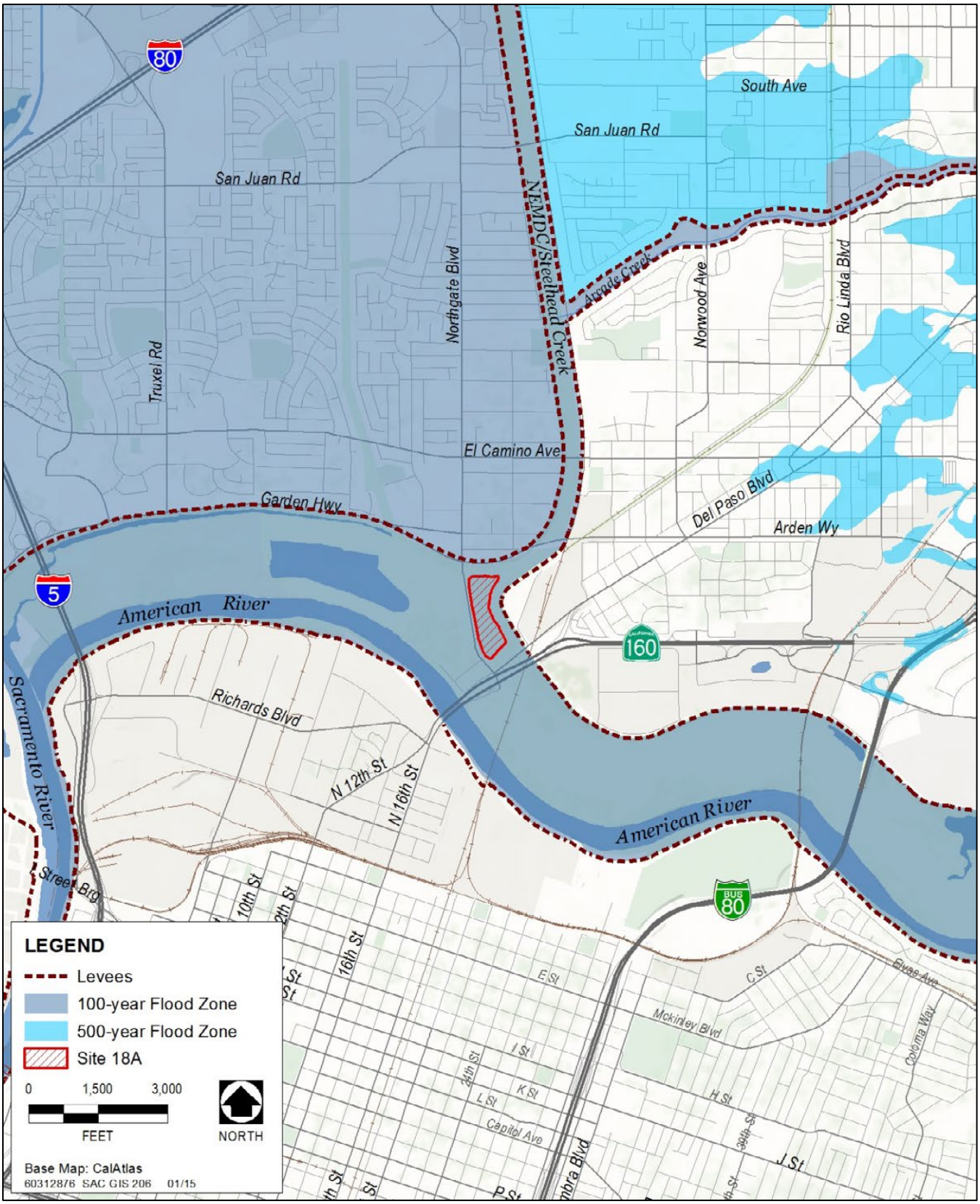
In accordance with the Sacramento County General Plan of 2005-2030 Conservation Element Policy CO-98, SAFCA would coordinate with Federal, State and local agencies overseeing levee and bank stabilization (Sacramento County 2011). NEMDC/Steelhead Creek is a regulated stream under the Water Code 8710 and the Central Valley Flood Protection Board (CVFPB) California Code of Regulations, Title 23, Division 1 (CVFPB 2010). As such, SAFCA would consult with the CVFPB, as appropriate, to acquire the regulatory approvals necessary to obtain a floodplain encroachment permit to perform work in the NEMDC/Steelhead Creek and American River floodplain and within the American River Parkway bike trail embankment.

The proposed project would not disrupt the existing flood protection system and would not expose people or structures to a risk of loss, injury or death from flooding. Therefore, this impact would be less than significant, and no mitigation would be required. See item g) above for additional information.

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

No Impact. The proposed project site is relatively flat, with an approximate2 percent slope on the basin floor and 4H:1V side slopes on the interior of the surrounding berm,; therefore, the likelihood of mudflows resulting from a landslide in these locations is considered low. No impact would occur, and no mitigation would be required.

See discussion a) iv) in Section 3.6, "Geology and Soils," for further information. The proposed project is located in the Central Valley, far from the Pacific Ocean, and would not be subject to tsunamis. A seiche is an oscillation of the surface of a lake caused by ground movement, which varies in period from a few minutes to several hours. The basin is typically dry most of the year, as opposed to a lake or reservoir that would usually have water impounded for a significant time period. Risk of seismic ground movement in the area is low (see section 3.6). Therefore, the risk of ground movement occurring during the period when the basin is flooded, thus potentially forming a seiche, would be even lower. Also, the propose project would not change this risk. Since the project area is not subject to tsunamis, and the likelihood of mudflows or seiches is low, there would be no impact. Therefore, no mitigation would be required.



Sources: Federal Emergency Management Agency 2013, DWR 2011, Sacramento County 2013

Exhibit 3.9-2. 100-Year Floodplain

3.10 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.1 ENVIRONMENTAL SETTING

Site 18A is a seasonally flooded wetland and riparian habitat area that encompasses approximately 17 acres in the American River Parkway upstream from Discovery Park, immediately south of the NEMDC/Steelhead Creek low-flow channel near the confluence with the Sacramento River and directly east of Northgate Boulevard (see **Exhibit 2-1** and **Exhibit 2-2** in Section 2, "Project Description").

Site 18A was previously used as a borrow site in 1996. Following the 1996 excavation, the area was modified to function as a backwater floodplain basin for the Sacramento and American Rivers and restored to provide wildlife habitat. Since it was restored, the project site has been periodically monitored and managed by SAFCA as a habitat mitigation site.

The American River Parkway bike trail circles around all four sides of the site along the top of the embankment that defines Site 18A. Dense riparian woodlands are located northeast of the site along both sides of NEMDC/Steelhead Creek and west of Northgate Boulevard. To the east of Site 18A is the NEMDC East Levee/American River North Levee and commercial and light industrial land uses that include an indoor soccer arena, paper recycling facility, and an auto repair shop. The Sacramento Northern Bike Trail is located east of Site 18A and the bike trail runs in a north-south direction along the NEMDC East Levee crown. The Sacramento Northern Bike Trail can be accessed at the point where the American River Parkway bike trail crosses Del Paso Boulevard. The closest residences to Site 18A are located north of the Arden-Garden Connector.

AMERICAN RIVER PARKWAY PLAN

Site 18A is located within the American River Parkway and subject to the American River Parkway Plan, which was first adopted in1962. The American River Parkway Plan 2008 Update was adopted in 2009 by the Sacramento County Board of Supervisors, the Sacramento City Council, and the California Legislature. The American River Parkway Plan addresses the entire length of the parkway, which includes areas in the unincorporated County, the City of Sacramento, the City of Rancho Cordova, and the Lake Natoma portion of the Folsom Lake State Recreational Area. The parkway plan was adopted as an element of the Sacramento County General Plan, and is referenced in the general plans of the Cities of Sacramento and Rancho Cordova.

The American River Parkway Plan provides a guide to land use decisions affecting the American River Parkway, specifically addressing its preservation, use, development, and administration. The purpose of the American River Parkway Plan is to ensure preservation of the naturalistic environment while providing limited development to facilitate human enjoyment of the American River Parkway, and to act as the management plan for the Federal and State Wild and Scenic Rivers Acts.

The American River Parkway Plan land use designations regulate the types of land uses, location, and level of facility development or degree of natural resource protection within the parkway. Site 18A is designated by the American River Parkway Plan as Protected Area. This designation identifies tracts of naturally occurring vegetation and wildlife, which although capable of sustaining light to moderate use with minimal alterations to the natural landscape, would be easily disturbed by heavy use. General access is encouraged, but facilities and other improvements are limited to convenience-type facilities. Activities that are compatible with these areas include nature appreciation, trails recreation, and aquatic recreation (other than motorized boating and motorized boat access), for individuals and small groups (Sacramento County 2008:117).

The American River Parkway Plan's land use policies regulate uses within the parkway, including the location and type of activities, as well as facilities and structures associated with those uses. For uses adjacent to the parkway, the American River Parkway Plan provides policy guidance for jurisdictions regulating uses outside of the parkway. The purpose of this policy guidance is to ensure that adjacent uses are sensitive to the American River Parkway's naturalistic setting and scenic values, protect the parkway from adverse visual impacts, and encourage a positive relationship with adjacent communities (Sacramento County 2008:7-111).

The following policies from the *American River Parkway Plan* (2008) regarding land use planning apply to the proposed project:

- **Policy 3.2:** Agencies managing the Parkway shall protect, enhance and expand the Parkway's native willow, cottonwood, and valley oak-dominated riparian and upland woodlands that provide important shaded riverine aquatic habitat (SRA), seasonal floodplain, and riparian habitats; and the native live oak and blue oak woodlands and grasslands that provide important terrestrial and upland habitats.

- **Policy 3.7:** The Parkway shall be managed to preserve, protect and/or restore riparian and in-channel habitat necessary for spawning and rearing of fish species, including native Chinook salmon (fall-run), steelhead, and Sacramento splittail, and recreational non-native striped bass and American shad. Priority shall be on providing diversity and complexity of habitat, consistent with recreational safety needs.

- **Policy 3.11:** Agencies managing the Parkway shall identify, enhance and protect:

  a. areas where maintaining riparian vegetation will benefit the aquatic and terrestrial resources;

  b. current shaded riverine aquatic habitat; and

  c. other areas that can support a shaded riverine aquatic habitat, as time and resources permit, especially as associated with flood control or Federally/State mandated species protection projects.

CITY OF SACRAMENTO GENERAL PLAN

Site 18A is located within the City of Sacramento and the proposed project elements on Site 18A are governed by the *City of Sacramento 2035 General Plan* (2014). The City General Plan update was adopted by the City Council on March 3, 2015. The City General Plan contains goals and policies related to land use and urban design; historic and cultural resources; economic development; housing; mobility; utilities; education, recreation, and culture; public health and safety; environmental resources; and environmental constraints. There are no goals and policies from the City of Sacramento General Plan regarding land use planning applicable to the proposed project.

City General Plan Land Use Designations and Zoning

- Site 18A and lands surrounding the site are designated by the City of Sacramento General Plan as Parks and Recreation. This land use designation includes greenways, large developed parks, and other areas primarily used for recreation. Typically, these areas are characterized by a high degree of open area and a limited number of buildings (City of Sacramento 2014:2-65).

Site 18A and lands surrounding the site are zoned by the City of Sacramento as American River Parkway-Floodplain. The American River Parkway-Floodplain zoning code is used to prevent the loss of life and property by prohibiting the erection of improvements or structures in a designated floodway, to protect the natural features of the American River floodplain, to prevent erosion and siltation, and to preserve valuable open space.

3.10.2 DISCUSSION

a) Physically divide an existing community?

No Impact. Culvert replacement, swale modifications, and habitat vegetation and establishment would occur on the existing seasonally flooded wetland and riparian habitat area. Because there are no existing residences within or in the vicinity of Site 18A, implementing the proposed project would not physically divide an established community. Therefore, no impact would occur, and no mitigation would be required.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project?

No Impact. SAFCA, acting as a joint powers authority pursuant to the Joint Exercise of Power Act (California Government Code Section 65000), must consider relevant Federal and State land use policies, but is exempt from plans, policies, and regulations adopted by local agencies (California Government Code Section 53090). Nevertheless, the following analysis considers the proposed project's consistency with relevant adopted local plans and policies to describe how local agencies address resource issues within and in the vicinity of Site 18A.

As stated previously, there are policies from the adopted City of Sacramento General Plan regarding land use planning applicable to the proposed project. Site 18A is designated by the City General Plan as Recreation and zoned American River Parkway-Floodplain. Implementing the proposed project would involve replacing the existing culvert, regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A, and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities. These improvements would occur on the existing seasonally flooded wetland and riparian habitat area and would not introduce land uses or result in other changes in land use that would cause inconsistencies with the Recreation land use designation and American River Parkway-Floodplain zoning code.

Site 18A is within the American River Parkway and would be subject to the American River Parkway Plan. Policies 3.2, 3.7, and 3.11 of the American River Parkway Plan support the protection, enhancement, and expansion of native habitats that benefit fish species, including riparian, woodland, and in-channel habitat that provides important shaded riverine aquatic habitat necessary for spawning and rearing of fish species (see Section 3.5, "Biological Resources," for further discussion). Habitat enhancement activities would focus on improving soil conditions to support revegetation of disturbed areas; improving existing wetland and riparian habitat quality and variability by planting additional seasonal wetland plants and riparian scrub; and increasing seasonally submerged vegetation, overhead cover, and fish rearing and feeding habitat. Improved floodplain-creek connectivity and enhancement of vegetative cover would likely improve fish rearing habitat, reduce fish stranding, and facilitate juvenile salmonid outmigration. Therefore, implementing the proposed project would be consistent with the American River Parkway Plan.

Consistency issues with applicable land use plans and policies would be issues related to land use regulations and not to a physical environmental consequence of project implementation. Therefore, conflicts with applicable adopted land use plans and policies would not be considered a significant impact under CEQA, in and of itself. Specific impacts associated with other resource and issue areas are addressed in each technical section of this IS/MND as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental effects that could result from implementing the proposed project.

For the reasons described above, the proposed project would not conflict with City of Sacramento General Plan policies, land use designations, or zoning, or with American River Parkway Plan policies. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. No adopted or approved habitat conservation or natural community conservation plans are in effect that would apply to the proposed project because the proposed project is outside of the Natomas Basin Habitat Conservation Plan area. Therefore, no impact would occur, and no mitigation would be required.

3.11 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.11.1 ENVIRONMENTAL SETTING

Under the Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board's decision to designate an area is based on a classification report prepared by the CGS and on input from agencies and the public. The project site lies within the designated Sacramento-Fairfield Production-Consumption Region for Portland cement concrete aggregate, which includes all designated lands within the marketing area of the active aggregate operations supplying the Sacramento-Fairfield urban center.

In compliance with SMARA, CGS has established the classification system shown in **Table 3.11-1** to denote both the location and significance of key extractive resources.

Table 3.11-1. California Geological Survey Mineral Land Classification System

Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
MRZ-1	Areas of mined out PCC-grade aggregate resources.
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood exists for their presence.
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
MRZ-4	Areas where available data is inadequate for assignment to any other MRZ.

Notes: MRZ = Mineral Resource Zone ; PCC = Portland cement concrete
Source: Dupras 1999:Plate 3

The project site is located in an area classified by CGS as MRZ-3—areas containing mineral deposits, the significance of which cannot be evaluated from available data (Dupras 1999:Plate 3).

The Sacramento County General Plan indicates there are no locally important mineral resources in the project vicinity (Sacramento County 2011:Figure 3).

3.11.2 DISCUSSION

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No Impact. Project-related activities would not occur in an area of known mineral resources (i.e., classified by CGS as MRZ-2) (Dupras 1999:Plate 3). Therefore the proposed project would not result in the loss of availability of known mineral resources, and no impact would occur. Therefore, no mitigation would be required.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The project site is not located in an area that has been designated as a locally important mineral resource recovery site (Sacramento County 2011: Figure 3). Therefore, no impact would occur and no mitigation would be required.

3.12 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or Federal standards?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1 ENVIRONMENT SETTING

INTRODUCTION

This section generally describes the ambient noise environment in the project vicinity, summarizes applicable noise- and vibration-related standards, and analyzes potential noise and vibration impacts of the proposed project, specifically the potential for the project to cause a substantial temporary or permanent increase in ambient noise levels within or around the project site, or to expose people to excessive noise or vibration levels.

Noise

Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and, therefore, may cause general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment.

Decibels (dB) are the standard unit of measurement of the sound pressure generated by noise sources and are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale for earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the noise energy would result in a 3-dB decrease.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-weighted scale, which approximates the frequency response of the average young ear when

listening to most ordinary everyday sounds, was devised. Noise levels using A-weighted measurements are written dBA or dB. All noise levels presented below are A-weighted unless described otherwise.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dB (increase or decrease) and that a change of 5 dB is readily perceptible (California Department of Transportation [Caltrans] 2009). A noise level that increases by 10 dB is perceived as twice as loud and a noise level that decreases by 10 dB is perceived as half as loud.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of frequencies from distant sources that create a relatively steady background noise in which no particular source is identifiable. Average noise levels over a period of minutes or hours, or equivalent sound levels are usually expressed as dB L_{eq}, which typically assumes a 1-hour average noise level and is used as such in this report. The maximum noise level (L_{max}) is the highest sound level occurring during a specific period. The Community Noise Equivalent Level (CNEL) is the 24-hour L_{eq} with a 5-dB "penalty" for the evening noise-sensitive hours from 7 p.m. to 10 p.m. and a 10-dB "penalty" applied during nighttime noise-sensitive hours from 10 p.m. to 7 a.m. The day-night average noise level (L_{dn} or DNL) is similar to the CNEL but with no adjustment (penalty) during evening hours; that is, daytime is defined as 7 a.m. to 10 p.m.

Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, and the sound level attenuates (decreases) at a rate of 6 dB for each doubling of distance from a point/stationary source. Roadways and highways and, to some extent, moving trains consist of several localized noise sources on a defined path; these are treated as "line" sources, which approximate the effect of several point sources. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. Therefore, noise from a line source attenuates less with distance than noise from a point source with increased distance.

Groundborne Vibration

Groundborne vibration is energy transmitted in waves through the ground. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source. This approach considers only the attenuation from geometric spreading and tends to provide for a conservative assessment of vibration level at the receiver.

Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration. Vibration is typically described by its peak and root-mean-square (RMS) amplitudes. The RMS value can be considered an average value over a given time interval. The peak vibration velocity is the same as the "peak particle velocity" (PPV), generally presented in units of inches per second (in/sec). PPV is the maximum instantaneous positive or negative peak of the vibration signal and is generally used to assess the potential for damage to buildings and structures. The RMS amplitude is typically used to assess human annoyance to vibration.

Existing Noise Conditions

As described in Chapter 2, "Project Description," the project area is located south of NEMDC/Steelhead Creek, north of Del Paso Boulevard and east of Northgate Boulevard, in the City of Sacramento, California. **Exhibit 1-1**, "Project Location Map," in Section 1 shows the location of the project area.

Sensitive Land Uses

Noise-sensitive land uses are those uses where quiet is essential to the purpose of the land use. Noise-sensitive land uses include residences and buildings where people normally sleep (including hospitals and hotels), as well as uses where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material, such as schools, libraries, theaters, and houses of worship. The closest noise-sensitive uses to the project area are the residential properties along Columbus Avenue just north of the Arden-Garden Connector and north of the project area, the bike paths along the boundary of the project site, and the commercial area along Walkway and Railroad Drive to the east of the project site. The structures closest to the project area that would be evaluated for structural damage from vibration are approximately 400 feet from the primary project construction areas, to the north and east.

Existing Noise Sources

The existing noise environment near the project site is influenced primarily by vehicular traffic on roadways that surround the project site: Arden-Garden Connector, Northgate Boulevard, Del Paso Boulevard, Walkway and Railroad Drive. Other sources of noise in the vicinity of the project site include the rail line located approximately 1,100 feet to the east of the project site. The existing noise environment near the project site is also influenced by natural sources (e.g., wind and birds).

Ambient Noise Level Surveys

AECOM measured ambient noise levels near existing noise-sensitive uses at various locations in the project area. **Table 3.12-1** summarizes the results of the ambient noise-level measurements. Four short-term (15-minute) measurements of ambient noise levels were conducted on Tuesday, December 9, 2014, in the project area, as shown in **Exhibit 3.12-1**. The existing noise environment in the project vicinity was dominated by local and distant traffic sources, railroad noise, and natural sources (e.g., wind and birds). As shown in **Table 3.12-1**, measured ambient noise levels at the noise-sensitive land uses closest to the project area range between 52–60 dBA L_{eq}.

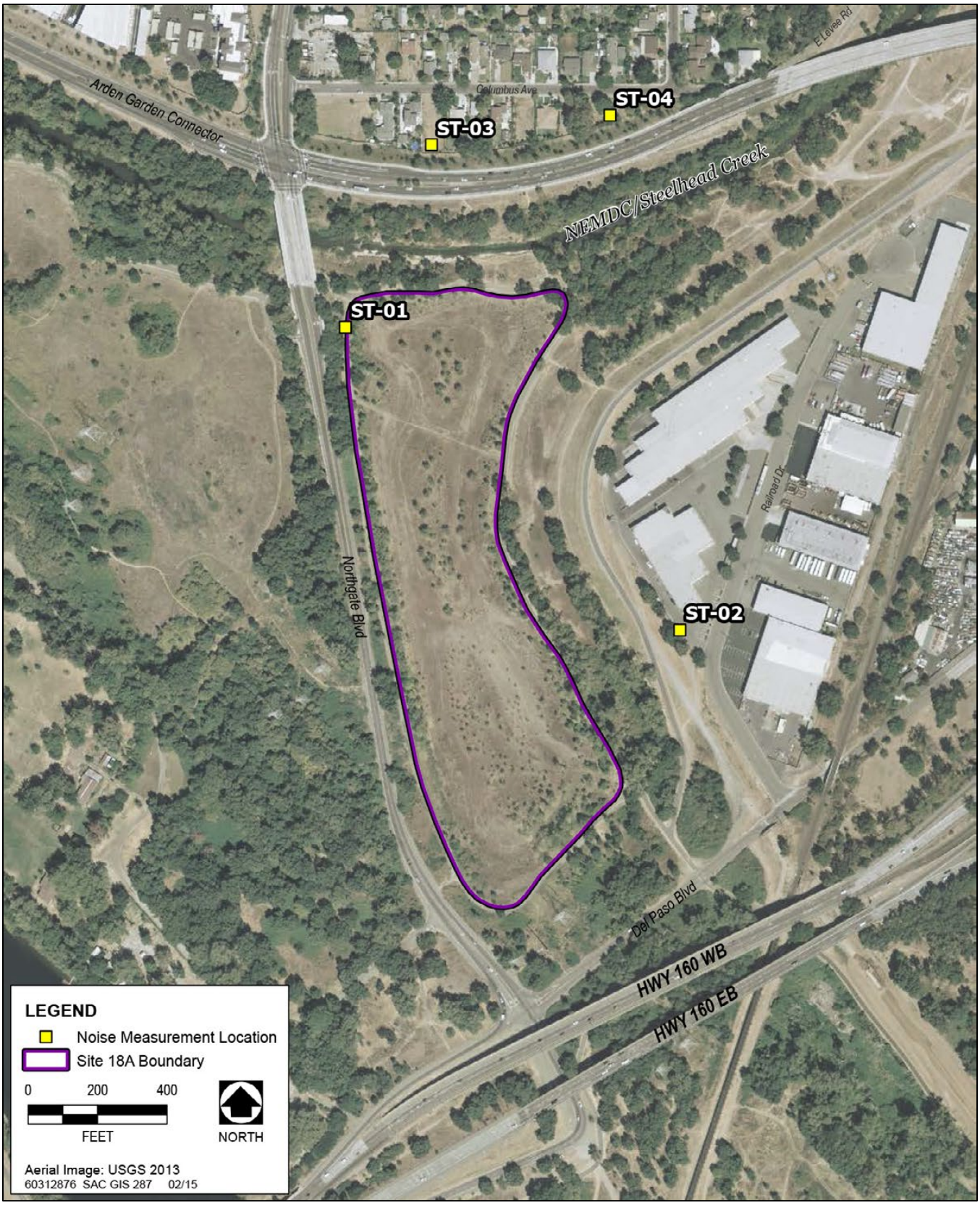
Table 3.12-1. Ambient Noise Levels in the Project Area

Receiver	Location	Time	Duration	Measured Sound Level, dB		
				L_{eq}	L_{max}	L_{min}
ST-01	Bike path, adjacent to northwest corner of project site	10:24	0:15	56	64	44
ST-02	1955 Railroad Drive (commercial)	12:25	0:15	52	72	43
ST-03	520 Columbus Avenue (residential)	13:02	0:15	60	76	42
ST-04	430 Columbus Avenue (residential)	13:31	0:15	59	70	41

Notes: dB = decibels; L_{eq} = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); L_{max} = maximum instantaneous sound level; L_{min} = minimum instantaneous sound level

Noise-level measurements were completed on Tuesday, December 9, 2014 using a Larson Davis Laboratories (LDL) Model 824 precision integrating sound-level meter. The meter was calibrated before the measurements using an LDL Model CAL200 acoustical calibrator. The meter was programmed to record A-weighted sound levels using a “slow” response. The equipment used complies with all pertinent requirements of the American National Standards Institute for Class 1 sound-level meters (ANSI S1.4).

Source: Data compiled by AECOM in 2014



Source: Adapted by AECOM in 2015

Exhibit 3.12-1. Noise-Monitoring Locations

Roadway Traffic Noise

In addition to the ambient noise measurements, existing traffic noise on the roadways in the project vicinity was estimated, based on the existing traffic volumes (using the recent daily traffic volumes in Google Earth). **Table 3.12-2** summarizes the modeled traffic noise levels 100 feet from the centerline of the roadways near the project site.[1] As shown in **Table 3.12-2**, existing traffic noise levels along the roadways in the project vicinity or those roadways that would be used by project haul trucks range from 55 dB L_{eq} to 69 dB L_{eq} at 100 feet from the centerlines of the modeled roadways.[2]

Table 3.12-2. Traffic Noise—Existing Condition

Roadway	Roadway Segment	dB, L_{eq} at 100 feet
Del Paso Boulevard	From Northgate Boulevard to Railroad Drive	65
Northgate Boulevard	From Garden Highway to Del Paso Boulevard	69
Garden Highway	From Truxel Road to Northgate Boulevard	69
Garden Highway	From Natomas Park Drive to Truxel Road	68
Garden Highway	From Interstate 5 to Natomas Park Drive	69
Garden Highway	From Gateway Oaks Drive to Interstate 5	68
Garden Highway	From Orchard Lane to Gateway Oaks Drive	56
Garden Highway	From Interstate 80 to Orchard Lane	55

Notes: dB = A-weighted decibels; L_{eq} = equivalent noise level
Source: Modeling conducted by AECOM in 2015

Railroad Noise

The Union Pacific Railroad (UPRR) operation in the vicinity of the project site is also a source of existing noise. To evaluate the effects of the railroad operation noise on the project site, the analysis used the mean Sound Exposure Level (SEL) of 102 dB (Federal Transit Administration [FTA], 2006). Using the mean SEL (102 dB) and the number of rail operations per day (14) a noise level of 71 dBA L_{dn} (61 dBA L_{eq}) at 50 feet from the center of the railroad tracks was calculated.

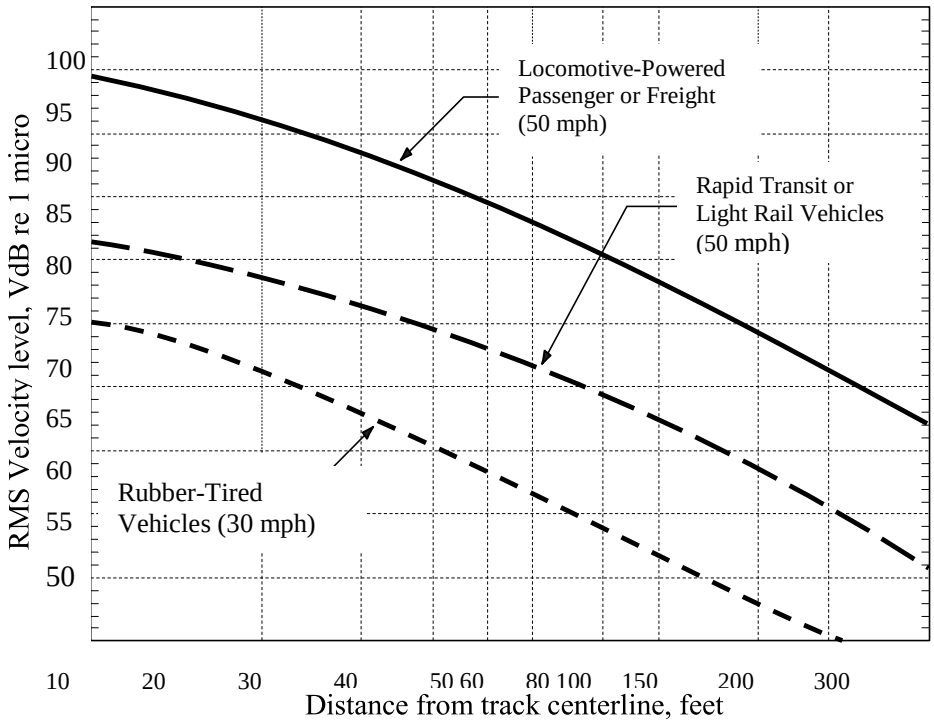
Existing Vibration

The existing vibration environment, like the noise environment, is dominated by transportation-related vibration. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the road right-of-way. The other source of existing groundborne vibration in the vicinity of the project site would be the railroad line located east of Railroad Drive to the east of the project site.

[1] 100 feet is a representative distance from the roadway centerline to adjoining noise-sensitive uses, such as residences, based on the width of the public rights-of-way surrounding the project site (approximately 80 feet).

[2] The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) combined with the California Vehicle Noise (Calveno) Reference Energy Mean Emission Levels was used to predict existing traffic noise levels within the project area. The FHWA model is the traffic noise prediction model currently preferred by FHWA, Caltrans, and county and city governments for assessing traffic noise.

However, the closest buildings to the project site that would be considered vibration sensitive under the proposed project would be approximately 500 feet (**Exhibit 3.12-1**) from the existing railroad tracks. Based on FTA data, heavy rail vehicles operating at 50 miles per hour (mph) would generate groundborne vibration of approximately 0.07 PPV (85 vibration decibels [VdB]) at a distance of 50 feet and approximately 0.007 PPV (65 VdB) at a distance of 500 feet from the track's centerline (FTA 2006, Figure 10-11 [reproduced below as **Exhibit 3.12-2**]).



Source: FTA 2006, adapted by AECOM in 2015

Exhibit 3.12-2. Generalized Ground-Surface Vibration Curves

3.12.2 DISCUSSION

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or Federal standards?

Less-than-Significant Impact with Mitigation Incorporated. The proposed project would generate temporary and short-term construction noise from equipment operating on the project site, and from the transport of construction equipment, materials and workers to and from the site.

Construction Equipment

Policy EC3.1.10 (Construction Noise) of the City of Sacramento General Plan Noise Element, and the City of Sacramento Noise Ordinance (8.68.80.D, [Exemptions] of the Sacramento City Code) were used for purposes of this analysis. Project-related construction noise at noise-sensitive residential properties (buildings) in the project vicinity would be considered significant if it would exceed 55 dBA L_{eq} during daytime hours (7 a.m.–10 p.m.) or 50 dBA L_{eq} during nighttime hours (10 p.m.–7 a.m.). These are seen as the most restrictive criteria established by City of Sacramento, and would provide the most conservative assessment of noise impacts at existing noise-

sensitive uses in the project vicinity. Project-related construction noise was estimated (as shown in **Table 3.12-3**) using FHWA's Roadway Construction Noise Model and a list of heavy equipment expected to be used.

As shown in **Table 3.12-3**, the unmitigated noise level produced by the combinations of equipment under construction phases for the proposed project would be approximately 74 to 87 dBA at a distance of 50 feet. Assuming standard spherical spreading loss (-6 dB per doubling of distance), and assuming the highest unmitigated construction noise level of 87 dBA at 50 feet, the project construction noise levels were estimated to be 63 to 69 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4**. These noise levels would exceed the threshold of 55 dBA L_{eq}. However, these results overstate actual noise exposure because they do not consider noise attenuation associated with ground and atmospheric absorption. Actual construction noise levels would be substantially less due to the presence of a wide earthen levee projecting approximately 10 feet higher than the "line of sight" between the noise source (construction equipment at the culvert site) and the receiver (the nearest home). An earthen berm, such as a levee, can provide noise attenuation of up to 15 dBA if it is several feet higher than the "line of sight" between the noise source and the receiver (FHWA 2011). Therefore, the project construction noise levels would be 40 to 54 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4** with berm. These noise levels would not exceed the threshold of 55 dBA L_{eq}.

Furthermore, Section 8.68.080 of the City's Noise Ordinance exempts certain activities, including "noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure," as long as these activities are limited to between the hours of 7 a.m. and 6 p.m. Monday through Saturday, and between the hours of 9 a.m. and 6 p.m. on Sunday. These exemptions are typical of City and County noise ordinances and reflect the recognition that construction-related noise is temporary in character, is generally acceptable when limited to daylight hours, and is expected as part of a typical urban noise environment (along with sirens).

Also, project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction would not exceed the applicable nighttime threshold of 45 dBA L_{eq}.

Therefore, noise levels from project-related construction would comply with the applicable daytime and nighttime noise exposure limits established by the City and would comply with the City's Noise Ordinance. Thus, this impact would be less than significant.

Construction Traffic

Construction of the proposed project would result in additional vehicle trips on the local roadway network as workers commute and equipment and materials are transported.

Project-related construction traffic noise levels were estimated (as shown in **Table 3.12-5**) using the FHWA's Roadway Noise Model (FWHA RD-77-108) at 100 feet. Noise-sensitive land uses including residential properties are located within 100 feet from the centerline of the routes designated for hauling material from Site 18A to the Reach 19A Berm Site. As shown in **Table 3.12-5**, the unmitigated noise level produced by the construction traffic for the proposed project would be approximately 55 dBA at the nearest noise-sensitive uses. These results represent the worst-case, conservative noise exposure because they do not consider noise attenuation associated with intervening structures and atmospheric absorption. Therefore, actual construction noise levels could be less.

Table 3.12-3. Construction Activities, Equipment, and Calculated Noise Levels, dB

Construction Activity		Estimated Duration	Anticipated Number and Type of Equipment that May Be Used by the Contractor	Noise Level at 50 Feet, dB	
				L_{max}	L_{eq}
Temporary Bike Trail Realignment	Installation	3 days	(1) Grader	85	81
			(1) Asphalt paver	85	82
			(1) Front-end loader	80	76
			(1) Smooth drum roller	85	78
			(1) Haul trucks	84	80
			Combined Noise Levels	**85**	**87**
	Removal	1 day	(1) Front-end loader	80	76
			(1) Haul trucks	84	80
			Combined Noise Levels	84	81
Culvert and Approach Channel Construction	Excavation	4 days	(1) Excavator	**85**	**81**
	Installation of Culvert and Rip-Rap Replacement	3 weeks	(1) Small (D4 or similar) bulldozer	85	81
			(2) Jumping-jack style compactors	80	73
			(2) Sheeps-foot compactors	80	73
			(1) Sheeps-foot roller	85	78
			(3) 10-wheel haul trucks	84	80
			(1) Concrete truck and pump rig	85	81
			Combined Noise Levels	**85**	**87**
	Backfill and Grading	5 days	(1) D4 bulldozer	85	81
			(1) Excavator	85	81
			(1) D4 bulldozer or grader	85	81
			Combined Noise Levels	**85**	**86**
Habitat Enhancement	Swale-Grading	2 days	(1) D6 bulldozer or grader	**85**	**81**
	Deep Ripping and Soil Improvements	3 days	(1) D8 bulldozer	**85**	**81**
	Seeding Native Grass Mix	2 days	Broadcast seeding	**N/A**	**N/A**
	Installation of Riparian Plantings	5 days	Hand planting with shovels	**N/A**	**N/A**
	Irrigation	29 cumulative months over a 4-year period	(1) Water truck OR	**84**	**80**
			(1) Water pump	**77**	**74**

Notes: dB = decibels; L_{eq} = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); L_{max} = maximum instantaneous sound level; N/A = not available

Source: Data compiled by AECOM in 2015

Table 3.12-4. Construction Equipment Noise Levels (dB, L_{eq}) at the Nearest Noise-Sensitive Uses in the Project Area

Receiver	Location	Shortest Distance (feet) Between Noise-Sensitive Uses and Proposed Construction Areas	Noise Level, dB L_{eq}						
			Exterior			Interior			
			Ambient Noise	Maximum Project Construction Noise		Project Noise, Doors/Windows Open[1]		Project Noise, Doors/Windows Closed[2]	
				No Berm	With Berm[3]	No Berm	With Berm	No Berm	With Berm
ST-01	Bike path, adjacent to northwest corner of project site	50	56	87	NA	N/A	NA	N/A	NA
ST-02	1955 Railroad Drive (commercial)	400	52	69	54	54	39	44	29
ST-03	520 Columbus Avenue (residential)	400	60	69	54	54	39	44	29
ST-04	430 Columbus Avenue (residential)	400	59	69	54	54	39	44	29

Notes: dB = decibels; Leq = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); N/A = not available; ST = short-term

[1] 15 dB reduction for doors/windows open (EPA 1974).

[2] 25 dB reduction for doors/windows closed (EPA 1974).

[3] 15 dBA reduction assumed for levee based on attenuation for intervening earthen berm (FHWA 2011).

Source: Data compiled by AECOM in 2015

Table 3.12-5. Traffic Noise—Existing + Construction Condition

Roadway	Roadway Segment	Traffic Noise Level dB, L_{eq} at 100 feet			Project Increase
		Existing	Construction	Existing + Construction	
Del Paso Boulevard	From Northgate Boulevard to Railroad Drive	65	55	65	0
Northgate Boulevard	From Garden Highway to Del Paso Boulevard	69	55	69	0
Garden Highway	From Truxel Road to Northgate Boulevard	69	55	69	0
Garden Highway	From Natomas Park Drive to Truxel Road	68	55	68	0
Garden Highway	From Interstate 5 to Natomas Park Drive	69	55	69	0
Garden Highway	From Gateway Oaks Drive to Interstate 5	68	55	68	0
Garden Highway	From Orchard Lane to Gateway Oaks Drive	56	55	59	3
Garden Highway	From Interstate 80 to Orchard Lane	55	55	58	3

Notes: dB = A-weighted decibels; L_{eq} = equivalent noise level.

Source: Modeling conducted by AECOM in 2015

Policy EC3.1.10 (Construction Noise) of the City of Sacramento General Plan Noise Element and Section 8.68 of the Sacramento City Code were used for purposes of this analysis. Project-related construction traffic noise at noise-sensitive residential properties (buildings) in the project vicinity would be considered significant if it would exceed 55 dBA L_{eq} during daytime hours (7 a.m.–10 p.m.) or 50 dBA L_{eq} during nighttime hours (10 p.m.–

7 a.m.). These are seen as the most restrictive criteria established by the City of Sacramento, and would provide the most conservative assessment of noise impacts at existing noise-sensitive uses in the project vicinity.

As shown in **Table 3.12-5**, the existing traffic noise level along the roadways that would be used by project hauling trucks, ranges from 55 dB L_{eq} to 70 dB L_{eq} at 100 feet from the centerlines of the roadways. Noise-sensitive land uses including residential properties are located within 100 feet from the centerline of the routes designated for hauling material from Site 18A to the Reach 19A Berm Site. Therefore, the existing traffic noise levels already exceed the threshold of 55 dBA $L_{eq,}$ at the noise sensitive uses along the modeled roadway segments. As shown in **Table 3.12-5**, the increase in traffic noise level due to the project construction traffic would range from 0 (along most of the roadway segments) to 3 dB (only along Garden Highway from Interstate 80 to Gateway Oaks Drive). Because project-related construction traffic would increase traffic noise levels along some roadway segments exceeding the applicable noise threshold, this impact would be potentially significant. Project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction traffic would not result in an exceedance of the applicable nighttime threshold of 45 dBA L_{eq}.

Mitigation Measure NOI-1: Implement Measures to Reduce Construction-Related Traffic Noise Effects.

SAFCA shall require that its engineering design consultants and construction contractors implement the following measures to avoid and minimize construction traffic noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control.

To the extent feasible and practicable, the primary construction contractors shall employ noise-reducing construction practices such that noise from construction complies with applicable noise-level rules, regulations, and ordinances that apply to the work, including the noise standards established for non-transportation noise sources by the applicable agencies (City of Sacramento), depending on the jurisdictional location of the affected receptor(s). Measures that shall be used to limit noise shall include the following:

a) Prohibit use of materials and equipment deliveries prior to 7 a.m. and after 6 p.m., Monday through Saturday; and prior to 9 a.m. and after 6 p.m., on Sunday.

b) Establish and enforce construction site and haul road speed limits.

c) Route construction-related truck traffic along roadways that will cause the least disturbance to residents.

d) Use high-grade engine exhaust silencers and engine-casing sound insulation.

e) Restrict the use of bells, whistles, alarms, and horns to safety-warning purposes.

Timing: During construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Implementing Mitigation Measure NOI-1, combined with the fact that construction trips would not generally occur at times when people normally sleep, and would be limited to temporary and infrequent construction

activities, would reduce the traffic noise impact associated with project-related construction to a less-than-significant level.

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

Less-than-Significant Impact. The proposed project would generate construction vibration from equipment operating on the project site, and from the transport of construction equipment, materials and workers to and from the site.

Construction Equipment

Project construction–related vibration would result from the use of heavy earth-moving equipment for area clearing, excavation, and grading. These activities would produce a vibration level of approximately 87 VdB (0.089 in/sec PPV) at a distance of 25 feet (which is the reference vibration level for operation of a large bulldozer [FTA 2006; Caltrans 2004]). The distance between proposed construction activities and the closest acoustically sensitive uses would be approximately 100 to 1,700 feet, as shown in **Table 3.12-6**. Assuming a standard reduction of 9 VdB per doubling of distance (FTA 2006), the project-related construction vibration level at the nearest receivers would be approximately 32 to 69 VdB. This level of vibration is below any established threshold of significance and would not likely be perceptible. Therefore, this impact would be less than significant. No mitigation would be required.

FTA has published a technical manual entitled *Transit Noise and Vibration Impact Assessment* that provides criteria for groundborne vibration impacts with respect to building damage during construction activities (FTA 2006). According to FTA guidelines, a vibration-damage criterion of 0.20 in/sec PPV should be considered for non-engineered timber and masonry buildings. Furthermore, structures or buildings constructed of reinforced concrete, steel, or timber have a vibration-damage criterion of 0.50 in/sec PPV pursuant to the FTA guidelines. As shown in **Table 3.12-6**, the project-related temporary and short-term construction vibration level at the nearest receivers would be approximately 0.001 PPV to 0.031 PPV. This level of vibration is below the established threshold of significance of 0.50 in/sec PPV pursuant to the FTA guidelines and would not likely be perceptible. Therefore, this impact would be less than significant. No mitigation would be required.

Construction Traffic

Construction of the proposed project would result in additional vehicle trips on the local roadway network as workers commute and equipment and materials are transported. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the road right-of-way as shown in **Exhibit 3.12-2** above, for rubber-tired vehicles. Therefore, this impact would be less than significant, and no mitigation would be required.

Table 3.12-6. Construction Equipment Vibration Levels (VdB, PPV) at the Nearest Noise-Sensitive Uses in the Project Area				
Receiver	Location	Shortest Distance (feet) Between Noise-Sensitive Uses and Proposed Construction Areas	Project, Vibration Levels	
			PPV	VdB
ST-01	Bike path, adjacent to northwest corner of Project site	50	0.031 (N/A)	78 (N/A)
ST-02	1955 Railroad Drive (Commercial)	400	0.001	51
ST-03	520 Columbus Avenue (Residential)	400	0.001	51
ST-04	430 Columbus Avenue (Residential)	400	0.001	51

Notes: N/A = not available; PPV = peak particle velocity; VdB = vibration decibels
Source: Data compiled by AECOM in 2015

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

No Impact. The proposed project would involve temporary and short-term construction activities only, and would not introduce any permanent sources of noise. Additionally, the project would not alter the local environment, such as by increasing the noise production/exposure associated with existing, permanent sources of noise in the project area. Therefore, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project would generate construction noise from equipment operating on the project site, and from the transport of construction equipment, materials and workers to and from the site.

Construction Equipment

Ambient noise levels at the existing residential properties in the project vicinity ranged between 52 dBA L_{eq} and 60 dBA L_{eq}, during the daytime (7 a.m.–10 p.m.) hours (as shown in **Table 3.12-4**). A project-related construction noise level of +5 dB above the ambient level (L_{eq}) would be considered significant at residential receivers in the project vicinity.

Project-related construction equipment noise levels were estimated using FHWA's Roadway Construction Noise Model and a list of heavy equipment expected to be used. As shown in **Table 3.12-3**, the unmitigated noise level produced by the combinations of equipment under construction phases for the proposed project would be approximately 74 to 87 dBA at a distance of 50 feet. Assuming standard spherical spreading loss (-6 dB per doubling of distance), and assuming the highest unmitigated construction noise level of 87 dBA at 50 feet, the project construction noise levels were estimated to be 63 to 69 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4**. These results represent the worst-case, conservative noise exposure because they do not consider noise attenuation associated with ground and atmospheric absorption. Therefore, actual construction noise levels would be substantially less due to the presence of a wide earthen levee projecting approximately 10 feet higher than the "line of sight" between the noise source (construction equipment at the culvert site) and the receiver (the nearest home). An earthen berm, such as a levee, can provide noise attenuation of up to 15 dBA if it

is several feet higher than the "line of sight" between the noise source and the receiver (FHWA 2011). Therefore, the project construction noise levels would be 40 to 54 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4** with berm.

Ambient noise levels at the existing rural residential properties in the project vicinity ranged between 52 dBA L_{eq} and 60 dBA L_{eq}, during the daytime (7 a.m.–10 p.m.) hours (as shown in **Table 3.12-4**). The estimated project-related construction noise levels of 40 dBA L_{eq} to 54 dBA L_{eq} at residences closest to the project area (as shown in **Table 3.12-4**), would increase exterior ambient noise levels of 52 dBA L_{eq} and 60 dBA L_{eq} by 0 to 2 dB. This level of increase would not exceed the established threshold of 5 dB above ambient noise levels. Therefore, this impact would be less than significant.

With respect to the interior noise levels, the existing interior noise level of 45 dBA was assumed for residential uses (General Plan Policy EC 3.1.3 Interior Noise Standards). As discussed under item a) above, project-related construction noise levels with doors and windows closed would be 29 dBA L_{eq} at residences closest to the project area (as shown in **Table 3.12-4**). This level of interior noise would not exceed the applicable threshold of 45 dBA for interior uses. Therefore, project-related construction noise would not cause an increase of +5 dB or more above the ambient interior level at noise-sensitive receivers in the project vicinity.

Project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction would not exceed the applicable nighttime threshold of 45 dBA L_{eq}.

Project construction workers would be exposed to typical noise levels from heavy construction equipment during their daily activities. It is expected that project construction workers would use hearing protection while working around heavy equipment, which would also reduce their exposure to aircraft operations noise.

Construction Traffic

Construction activities associated with the proposed project would result in approximately 150 to 200 round-trip truck hauls to transport the excess soil material from Site 18A to the Reach 19A Berm Site over a 4-day period (Section 2.4.2 in Chapter 2, “Project Description”). Noise-sensitive land uses including residential properties are located within 100 feet from the centerline of the routes designated for hauling materials to the Reach 19A Berm Site. As shown in **Table 3.12-5**, the unmitigated noise level produced by the construction traffic for the proposed project would be approximately 55 dBA at the nearest noise-sensitive uses; and the existing traffic noise level along the roadways that would be used by project haul trucks, range from 55 dB L_{eq} to 70 dB L_{eq} at 100 feet from the centerlines of the roadways. As shown in **Table 3.12-5**, the increase in traffic noise level due to project construction traffic, above the existing traffic noise level would range from 0 (along most of the roadway segments) to 3 dB (only along Garden Highway from Interstate 80 to Gateway Oaks Drive). Because the increase would be less than 5 dB, this impact would be less-than-significant. Therefore, no mitigation would be required

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is not located within 2 miles of a public airport. The nearest airport, the CHP Academy Airport, is located approximately 4.5 miles west of the project site. Because all project activities would be located outside of the Airport Comprehensive Land Use Plan area and the proposed project would not involve any aircraft uses for construction or operations, the proposed project would not affect any airport operations.

Because the proposed project does not propose the addition of any noise-sensitive receivers, and would not expose people on- or off-site to excessive aircraft noise levels, no impact would occur. No mitigation would be required.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. No private airstrips are in the vicinity of the project site, and the proposed project would not affect any airstrip operations. Therefore, implementing the proposed project would not expose people on- or off-site to excessive noise levels. No impact would occur, and no mitigation would be required.

3.13 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Population and Housing. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 ENVIRONMENTAL SETTING

POPULATION

The City of Sacramento and Sacramento County have experienced population growth in the recent past, and this growth is forecasted to continue. The California Department of Finance (DOF) estimates that the City of Sacramento's total estimated population increased from 407,018 in 2000 to an estimated 466,488 in 2010, a 1.0 percent increase over the 10-year period (City of Sacramento 2013).

As of January 1, 2014, the City's total estimated population was 475,122 (DOF 2014). The City is expected to add an estimated 173,893 new residents by 2035, for a total estimated population of 640,381 (City of Sacramento 2013). This represents an increase of approximately 38 percent over the 2010 estimated population.

HOUSING

According to DOF, the estimated number of housing units in the City of Sacramento was 190,911, with an average household size of 2.62 persons per unit (DOF 2010). As of January 1, 2014, the DOF estimates the number of housing units in the City is the same as the number of housing units in 2010 (190,911 units); however, the average household size has increased to 2.66 persons per unit (DOF 2014).

In the City of Sacramento, the majority of housing units are single-family homes. Approximately 66 percent of these housing units in the City were attached and detached single-family homes in 2014 (DOF 2014).

3.13.2 DISCUSSION

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

No Impact. Implementing the proposed project would involve replacing the existing culvert, regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A, and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities. Construction activities would periodically occur between spring 2015 and October 2016 and would range from 2 days to 3 weeks in duration. The source of the construction labor force is unknown at this time, but workers would likely come from the local labor pool and union hiring halls. These jobs would not directly or indirectly induce substantial population growth.

The proposed project would not involve constructing new homes or businesses or extending roadways or other infrastructure that would directly or indirectly induce population growth. Consequently, implementing the proposed project would not affect current and/or planned population growth patterns within the City of Sacramento. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. Construction of the proposed project would occur on a seasonally flooded wetland and riparian habitat area. Because there are no existing residences within Site 18A, implementing the proposed project would not displace substantial numbers of existing homes that necessitates the construction of replacement housing elsewhere. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. Construction of the proposed project would occur on an existing seasonally flooded wetland and riparian habitat area. Because there are no existing residences within Site 18A, implementing the proposed project would not displace substantial numbers of people that necessitates the construction of replacement housing elsewhere. Therefore, no impact would occur, and no mitigation would be required.

3.14 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.1 ENVIRONMENTAL SETTING

The project site is located within Sacramento Fire Department (SFD) City District 3 (SFD 2014).

The Sacramento Police Department (SPD) provides law enforcement services in the project area. SPD patrol operations are divided into four command areas (North, Central, East, and South) that are further subdivided into Beats. Site 18A is located in Beat 1C of the North Command, which covers North and South Natomas (SPD 2013).

The areas surrounding Site 18A are served by Twin Rivers Unified School District, North Sacramento Unified School District, and Sacramento Unified School District. There are about 20 schools within 2 miles of the project site.

Site 18A is located within the American River Parkway, which consists of an assemblage of regional parks within the riparian corridor along the adjacent the American River stretching from the confluence with the Sacramento River upstream to Folsom Lake. The parkway is a valuable regional resource which attracts bicyclists, runners, walkers, horseback riders, and rafters. (Sacramento County 2008:10.)

3.14.2 DISCUSSION

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

FIRE PROTECTION?

No Impact. The project site would continue to be served by the SFD. The closest fire station within the SFD is Station 2 located at 1229 I Street, Sacramento, California. SFD Station 2 is located approximately 2 miles southwest of the project site. Implementing the proposed project would involve replacing a culvert and habitat enhancement within the Site 18A basin. Project construction and operation would not create new housing or other structures, and therefore, would not require additional fire protection facilities. Furthermore, access to the site would be maintained during construction in accordance with City of Sacramento fire policies and regulations. Therefore, no impact would occur, and no mitigation would be required.

Police protection?

No Impact. The project site would continue to be served by the SPD. The closest SPD substation is Richards Station located at 300 Richard's Boulevard, Sacramento, California. Richards Station serves the Central Command and is located on the south side of the American River approximately 0.8 mile from Site 18A. Kinney Station serves the North Command, which is responsible for patrolling the project area. Kinney Station is located approximately 3 miles northeast of the project site at 3550 Marysville Boulevard, Sacramento, California. Implementing the proposed project would involve replacing a culvert and habitat enhancement within the Site 18A basin, and would not require additional police protection facilities or services. Therefore, no impact would occur, and no mitigation would be required.

Schools?

No Impact. The proposed project would not provide any new housing or a large number of employment opportunities. Therefore, the proposed project would not generate new students or increase the demand on the local school systems. No impact would occur, and no mitigation would be required.

Parks?

No Impact. During proposed project construction, a portion of the American River Parkway bike trail west of the culvert would be temporary realigned to safely route bicyclists and other trail users around the west and south sides of the basin to the section of bike trail at the southeast corner of the site that leads to the bike trail crossing at Del Paso Boulevard. After replacement of the culvert and other construction activities, the realigned portion of the bike trail would be removed and the section of paved bike trail that crosses over the culvert would be reconstructed to pre-project conditions. The bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would also be closed to the public during construction. The approximately 280-foot-long portion of bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open to the public and haul trucks entering and exiting Site 18A during construction, but flaggers would be deployed to allow joint use of this section of bike trail by the recreating public and construction

vehicles. Therefore, access to the American River Parkway bike trail would be maintained during project construction. Moreover, the proposed project would not provide any new housing or a large number of employment opportunities that would generate new residents who would require new or expanded park facilities. Thus, there would be no impact, and no mitigation would be required.

Other Public Facilities

No Impact. No other public facilities would be affected by construction or operation of the proposed project. Therefore, no impact on other public facilities would occur, and no mitigation would be required.

3.15 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

3.15.1 ENVIRONMENTAL SETTING

The project site is located along the north bank of the Lower American River within the American River Parkway where the Parkway is joined by NEMDC/Steelhead Creek. The American River Parkway consists of an assemblage of regional parks along the adjacent riparian corridor stretching from the confluence with the Sacramento River upstream to Folsom Lake. The parkway is a valuable regional resource which attracts bicyclists, runners, walkers, horseback riders, and rafters. (Sacramento County 2008:10.)

The primary recreational feature within the parkway that would be affected by the proposed project is a portion of the American River Parkway bike trail. The American River Parkway bike trail runs along the American River from Discovery Park to Folsom Lake and connects to the Sacramento Northern Bike Trail linking the northern parts of Sacramento County to downtown.

The American River Parkway bike trail circles around all four sides of the site along the top of the embankment that surrounds and defines Site 18A. The existing culvert passes under the American River Parkway bike trail near the northwest corner of the Site 18A basin and pedestrians and bicyclists may access this portion of the bike trail from west of the existing culvert. Access to the bike trail is also provided by Del Paso Boulevard, just south of Site 18A. In addition, the southern terminus of the Sacramento Northern Bike Trail is located east of Site 18A and can be accessed at the point where the American River Parkway bike trail crosses Del Paso Boulevard.

3.15.2 DISCUSSION

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less-than-Significant Impact. The proposed project would not result in new housing or employment opportunities that would increase the population in the project vicinity. Therefore, the proposed project would not cause the deterioration of existing neighborhood or regional parks or other recreational facilities.

Implementing the proposed project would result in temporary closure and realignment of portions of the American River Parkway bike trail; however, access to the bike trail would be maintained through detours and

traffic control (see Item b), below). The quality of recreational experiences in the American River Parkway or along the American River Parkway bike trail and Sacramento Northern Bike Trail in the vicinity of Site 18A would likely be somewhat reduced, temporarily, as a result of noise, and visual disturbance. Degradation of the quality of recreational experiences due to construction activities would be temporary and short-term in nature. Any temporary shift in use of off-site bike trails or recreational facilities resulting from project construction would not be expected to accelerate the physical deterioration of any existing facility. Therefore, this impact would be less than significant, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project would not result in new housing or employment opportunities that would increase the population in the project vicinity. Therefore, the proposed project would not require construction or expansion of existing recreational facilities, and the proposed project does not include development of any new recreational facilities.

Replacement of the existing culvert would require temporarily realigning the American River Parkway bike trail where the existing culvert passes under the bike trail near the northwest corner of the Site 18A basin. A temporary 8-foot-wide by approximately 130-foot-long asphalt concrete trail would be installed west of the culvert to safely route bicyclists and other trail users around the west and south sides of the basin to the section of bike trail at the southeast corner of the site that connects the bike trail to the crossing at Del Paso Boulevard (see **Exhibit 2-3** in Section 2, "Project Description"). Once the new culvert is in place and construction of the proposed project completed, the temporary asphalt concrete trail would be removed and the bike trail would be restored to pre-project conditions.

The American River Parkway bike trail along the north and east sides of the Site 18A embankment would require temporary closure to the public during construction. Haul trucks would use this portion of the bike trail to access the Site 18A work areas and this area could potentially be used for equipment staging. Any construction-related damage to this portion of the American River Parkway bike trail would be repaired and restored to pre-project conditions.

An approximately 280-foot-long portion of the American River Parkway bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open to the public and used by haul trucks entering Site 18A during construction. The crossing at Del Paso Boulevard provides access to the American River Parkway bike trail along the Site 18A embankment and access to the Sacramento Northern Bike Trail located east of Site 18A. Along this 280-foot-long portion of the American River Parkway bike trail and its intersection with Del Paso Boulevard, the Contractor would be required to deploy flaggers to intermittently hold public traffic, thereby allowing recreational users continued access to the bike trail.

As discussed above, proposed project construction activities would result in temporary closure and realignment of portions of the American River Parkway bike trail and potential damage to the bike trail along the Site 18A embankment during construction. However, access to the bike trail would be maintained through detours and traffic control and construction-related damage would be repaired to pre-project conditions. Therefore, this impact would be less than significant, and no mitigation would be required.

3.16 TRANSPORTATION/TRAFFIC

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Transportation/Traffic. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

3.16.1 ENVIRONMENTAL SETTING

ROADWAYS

No State highways would be used or affected by project-related construction traffic. The project site would be accessed from existing local roadways. Main access to the project site would be from Del Paso Boulevard, south of the project site (see **Exhibit 2-1** and **Exhibit 2-2** in Chapter 2, “Project Description”).

The project includes hauling approximately 2,000 cubic yards (cy) of soil offsite for use at the Reach 19A Berm Site. As explained in Chapter 2, “Project Description,” hauling on Garden Highway between the River Mile 0.5 Site (at approximately Natomas Park Drive) and the Reach 19A Berm Site has been previously addressed in the Draft Supplemental EIR (SEIR) No. 2 for the NLIP Landside Improvements Project (SAFCA 2012). This IS/MND therefore evaluates the portion of the haul route that would be new, extending from the access to the project at Del Paso Boulevard, along Northgate Boulevard, and along Garden Highway between Northgate

Boulevard and Natomas Park Drive. **Exhibit 2-1** illustrates these roadways, along with the locations of the River Mile 0.5 Site and the Reach 19A Berm Site.

The roadway segments that are addressed in this analysis are the roadway segments along the proposed haul route between Site 18A and the River Mile 0.5 Site. These roadway segments and their existing daily traffic volumes are presented in **Table 3.16-1**.

Table 3.16-1. Project Area Roadways Proposed to be Used by Haul Trucks

Roadway	From	To	Existing ADT
Del Paso Boulevard	Northgate Boulevard	Railroad Drive	8,486
Northgate Boulevard	Garden Highway	Del Paso Boulevard	21,224
Garden Highway	Truxel Road	Northgate Boulevard	23,026
Garden Highway	Natomas Park Drive	Truxel Road	17,778

Note: ADT = Average Daily Traffic
Source: Traffic Volumes from Google Earth, data compiled by AECOM in 2015

Bicycle and Pedestrian Facilities

Bikeways are classified as Class I (bike paths), Class II (bike lanes), and Class III (bike routes). According to the *Sacramento City/County Bikeway Master Plan* (City of Sacramento 2011), bikeways are planned in the vicinity of the project area along all major arterials and collectors including Del Paso Boulevard, and Northgate Boulevard, and surrounding the project site.

- **Class I (Bike trail or bike path):** A completely separated facility designated for the use of bicycles. The facility is separated from any street or highway by a physical space, berm, fence, or other barrier.
- **Class II (Bike lane):** A lane within a street or roadway designed for the one-way use of bicycles. It is an on-street facility with signs, striped lane markings, and pavement legends.
- **Class III (Bike Route):** Any on-street right-of-way recommended for bicycle travel which provides for shared-use with motor vehicles or pedestrian traffic.

Existing portions of the American River Parkway bike trail system surround the Site 18A basin and would be affected by the proposed project. Bicycle and pedestrian trails also exist adjacent to the portions of the proposed haul route between Site 18A and the River Mile 0.5 Site. Class II bike lanes are present on portions of Garden Highway and Northgate Boulevard along the haul route.

Airports

The project site is located approximately 4.5 miles east of the CHPAcademy Airport. However, as noted in Section 3.12, “Noise,” the proposed project is located outside of the area of influence for the CHP Academy Airport.

TRANSIT

No transit facilities are located in the project area. Sacramento Regional Transit (SACRT) provides public transportation within the project vicinity, offering a combination of advance-reservation and scheduled bus services from selected rural cities and communities to the Sacramento City urban area. The closest bus routes to the project area are Route 15 along Del Paso Boulevard to the south of the project, Route 13 along Garden Highway to the east of Northgate Boulevard and to the north of the project site, and Route 86 along Garden Highway to the west of Natomas Park Drive. (SACRT 2015).

RAILROADS

The Union Pacific Railroad operates a rail line located approximately 1,100 feet to the east of Site 18A.

3.16.2 DISCUSSION

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

Less-than-Significant Impact. The *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035* (Sacramento Area Council of Governments [SACOG] 2012), adopted in 2012, is the Federally mandated long-range planning document for identifying and programming roadway improvements throughout the region including Sacramento County. The City of Sacramento 2035 General Plan (2014) identifies estimated future travel demand and present goals, policies, and implementation programs for transportation systems and facilities within the City and its sphere of influence. The focus of these goals and policies is long-term development and design of transportation facilities, improvements to existing roadways, interagency coordination, and encouragement of alternative transportation (City of Sacramento 2009).

The Mobility Element of the City of Sacramento General Plan (adopted March 3, 2015) includes transportation-related goals and policies that establish measures of effectiveness for the performance of the local circulation system. However, most of the thresholds of the City's General Plan Mobility Element are not applicable to the proposed project given that the proposed project would only generate daily traffic during the construction period and construction-related trips would be dispersed throughout the proposed project area along the three roadways (Garden Highway, Northgate Boulevard, and Del Paso Boulevard). Only the following policy would apply to the proposed project:

- **M 4.2.1 Accommodate All Users.** The City shall ensure that all new roadway projects and any reconstruction projects designate sufficient travel space for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.

Construction of the proposed project would require hauling of equipment/materials and worker commute trips to and from the project area along local surface streets. Operations following project completion would not change compared to existing conditions. Therefore, an analysis of project-related traffic impacts using Level of Service (LOS) was not performed because LOS is primarily used for analyzing long-term effects of projects on traffic flow. This analysis used the recommended screening criterion from the Institute of Transportation Engineers

(ITE) (1988) for assessing the effects of construction projects that create temporary traffic increases. To account for the large percentage of heavy trucks associated with typical construction projects, ITE recommends a threshold level of 50 or more new peak-direction (one-way) trips during the peak hour. The culvert foundations would consist of approximately 240 cy of controlled low strength material (a sand-cement mixture). The culvert footings would consist of approximately 110 cy of cast-in-place concrete. The culvert headwalls and retaining walls would consist of approximately 100 cy of cast-in-place concrete. Assuming a capacity of 10 cy per load, approximately 45 round trip truck trips would be needed to deliver concrete to the site. It is anticipated that no more than 24 deliveries would be made on any given day during culvert and approach channel construction activities. Also, it is anticipated that approximately 150 to 200 haul truck round-trips would be needed to export the excess soil material over a 4-day period. In addition, construction workers would contribute commute trips to the local roadways. The project would require a maximum of only about 20 construction workers at any given time.

The daily truck volumes were estimated using the maximum number of haul trucks (150 to 200 round-trip) over a 4-day period for the proposed project. Truck trip estimates were based on the amount of material that would require removal and disposal, and the amount of new material that would be imported. This analysis assumes that construction activities would occur during a 10-hour work window each day and that construction trucks would operate throughout the day. Therefore, hourly numbers of haul trucks for the assigned route segments (see **Table 3.16-1**) were estimated based on an even distribution of truck trips throughout the 10-hour construction work window. Construction worker commute trips were only applied to peak hours in the morning and in the afternoon, assuming worker trips would occur once in the morning to get to the project site and once in the afternoon to leave the project site. Vehicle movements associated with the export and import of materials to and from Site 18A are shown in **Table 3.16-2**.

Trucks trips associated with import or removal of the required materials during construction of the proposed project would result in a total of up to approximately 50 truck trips per day in each direction (i.e., 100 one-way trips per day, assuming a passenger car equivalent [PCE] value of 2.0). Additionally, commuting by construction workers would result in approximately 20 additional total daily trips in each direction (i.e., 40 one-way trips per day) on the area roadways shown in **Table 3.16-1**.

As shown in **Table 3.16-2**, in total, activities associated with the proposed project may add as many as 140 total daily one-way trips to project area roadways over the course of the 10-hour work window. This would result in a maximum of 30 additional trips on area roadways during the peak hour (5 truck trips per hour both directions [10 trips per hour, assuming a PCE value of 2.0], and 20 worker trips per peak hour). Because the proposed project would not result in more than 50 new trips during the a.m. or p.m. peak hours, the proposed project is not anticipated to cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. Therefore, the proposed project would not result in substantial trip-generated traffic congestion. Also, construction-generated traffic would be temporary and therefore would not result in any long-term degradation in performance of any of the roadways in the vicinity of the proposed project. Therefore, the proposed project would not conflict with adopted applicable policies or plans related to the performance of the circulation system. This impact would be less than significant, and no mitigation would be required.

Table 3.16-2. Project Construction Vehicular Traffic Volumes									
				Volumes					
				Haul Truck Trips					
Roadway	From	To	Existing Peak	Total Truck Trips	Truck Trips Per Day	Truck Per hour	PCE per Hour	Workers per Peak-Hour	Total Per Peak-Hour
Del Paso Boulevard	Northgate Boulevard	Railroad Drive	849	200	50	5	10	20	30
Northgate Boulevard	Garden Highway	Del Paso Boulevard	2,122	200	50	5	10	20	30
Garden Highway	Truxel Road	Northgate Boulevard	2,303	200	50	5	10	20	30
Garden Highway	Natomas Park Drive	Truxel Road	1,778	200	50	5	10	20	30
Garden Highway	Interstate 5	Natomas Park Drive	2,024	200	50	5	10	20	30
Garden Highway	Gateway Oaks Drive	Interstate 5	1,692	200	50	5	10	20	30

Notes: PCE = Passenger Car Equivalent;
Source: Data modeled by AECOM in 2014

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

Less-than-Significant Impact. Operation of the proposed project would not substantially change from existing conditions, and therefore project operation would not result in conflicts with policies or programs supporting alternative transportation. Therefore, no impact from project operation would occur. Furthermore, the increased traffic resulting from project construction would be short-term and temporary. As discussed under item a) above, the project-related increase in traffic volumes along the affected roadways would be 30 vehicles per hour. This level of traffic activity would not degrade traffic operations along the roadways used by haul trucks and would be below the applicable threshold. Therefore, the proposed project would have a less-than-significant impact, and no mitigation would be required.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The project site is located approximately 4.5 miles east of the CHP Academy Airport. As noted in Section 3.12, “Noise,” the proposed project is located outside of the areas of influence for the CHP Academy Airport. Also, implementing the proposed project would not require the use of helicopters or any other equipment that would result in substantial safety risks by increasing air traffic levels or changing the location of air traffic. Therefore, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact with Mitigation Measures Incorporated. Trucks delivering materials and removing material and debris, as well as project-related construction worker commute traffic, would be entering and exiting Site 18A along Del Paso Boulevard periodically and using local roadways. Slow-moving trucks

entering and exiting Site 18A could pose hazards to vehicles, pedestrians, and bicyclists on Del Paso Boulevard immediately adjacent to the project site. However, signage and flaggers would be deployed at this location reducing the potential hazard posed to other drivers, pedestrians, and bicyclists.

Pavement sections on the area roadways (Garden Highway, Northgate Boulevard and Del Paso Boulevard) are designed to carry high volumes of heavy-duty vehicles. The presence of heavy-duty trucks during construction could, however, accelerate wear and tear on the local roadways along the haul route. In addition to shortening the life of pavement sections, heavy-duty truck traffic could cause more immediate road damage such as cracks and potholes. Potential damage to pavement would increase traffic hazards on local roadways. Therefore, this impact would be potentially significant.

Mitigation Measure TRA-1: Repair Damaged Roadways and Bike Trails Following Construction.

Following completion of construction, SAFCA, its engineering design consultants, or its construction contractors will assess and repair any project-related damage to roadways and paved bicycle/pedestrian paths that were used during construction, including all project-related potholes, fractures, or other damages.

Timing: Following completion of the culvert replacement and swale modifications.

Responsibility: Sacramento Area Flood Control Agency.

Implementing Mitigation Measure TRA-1 would reduce the potentially significant impact associated with increased hazards due to a design feature or incompatible uses to a less-than-significant level because project-related damage to roadways and paved bicycle/pedestrian paths would be repaired following construction.

e) Result in inadequate emergency access?

Less-than-Significant Impact. Emergency access to roadways in the project area could be reduced by activities associated with the proposed project. Slow-moving trucks entering and exiting Site 18A along Del Paso Boulevard could delay the movement of emergency vehicles between Northgate Boulevard and Railroad Drive. However, flaggers would be deployed in this area. Because flaggers would be present to control truck traffic in the event of an emergency to allow unimpeded movement of emergency vehicles, this impact would be less-than-significant. No mitigation would be required.

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

Less-than-Significant Impact. Operation of the proposed project would not substantially change from existing conditions, and therefore project operation would not result in conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, and would not decrease the performance or safety of such facilities. However, some portions of the bike trail surrounding Site 18A would be affected during construction.

As described in Chapter 2, “Project Description,” the bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would be closed to the public during construction. Haul trucks would use this portion of the bike trail to access the Site 18A work areas and equipment may be staged in these areas as well. The bike trail along the west and south sides of the embankment would remain open during construction. The approximately 280-foot-long portion of bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open for joint use by the recreating public and haul trucks entering

and exiting Site 18A during construction. To protect the public during the off-haul and delivery operations, the Contractor would be required to place warning signage and deploy flaggers to intermittently hold public traffic while trucks are traversing the joint-use portion of the bike trail. Because connectivity of the bike trail would be maintained and the safety of the public would be protected at the Del Paso Boulevard crossing and joint-use portion of the bike trail during construction, this impact would be less than significant, and no mitigation would be required.

3.17 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with Federal, State, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.17.1 ENVIRONMENTAL SETTING

WATER SUPPLY

Surface water from the American and Sacramento Rivers and groundwater pumped from the North and South American Subbasins of the Sacramento Valley Groundwater Basin together make up the water supply source for the City of Sacramento. The City's water distribution system consists of a pipeline network in which surface water and groundwater are mixed. The City maintains 27 municipal groundwater wells, 16 water storage facilities, and an estimated 1,760 miles of system mains throughout the City. The City also maintains five clear wells at the Sacramento River Water Treatment Plant and Fairbairn Water Treatment Plant (City of Sacramento 2011).

There are no groundwater wells, water storage facilities, or other water supply or conveyance facilities on the project site. Two groundwater wells exist in the vicinity of the proposed project area, which are primarily used for irrigation. The wells are located adjacent to each other, and approximately 2.5 miles directly east of Site 18A, near Erikson Industrial Park and Interstate Business 80 (Capital City Freeway).

WASTEWATER

Wastewater generated within the City of Sacramento is collected and ultimately conveyed to the Sacramento Regional Wastewater Treatment Plant for treatment and disposal. The City of Sacramento Department of Utilities provides wastewater collection and conveyance to approximately 2/3 of the area within the City limits that is not served by the City's combined sewer system, while the Sacramento Area Sewer District (formerly County Services District 1) provides wastewater collection to the remaining portions of the City.

The closest City of Sacramento Department of Utilities' sewer mains are located within the commercial and residential areas east of Site 18A and within residential areas north of Site 18A, north of the Arden-Garden Connector. There are no wastewater collection and conveyance facilities within the project site.

STORMWATER DRAINAGE

Stormwater runoff within the City flows into either the City's CSS or into individual drainage pump stations located throughout the City. Six tributaries of the Sacramento River pass through and provide drainage for the City. Dry Creek, Magpie Creek, and Arcade Creek provide drainage for the northern portion of the City (north of the American River), and Morrison Creek, Elder Creek, and Laguna Creek provide drainage for the southern portion of the City, south of the American River. The City's stormwater drainage system includes approximately 45,000 storm drain inlets, an estimated 65 miles of canals, and over 100 pump stations.

NEMDC/Steelhead Creek is a drainage canal whose waters have been interacting with the Site 18A basin since the excavation of borrow material and installation of the culvert in 1996. NEMDC/Steelhead Creek provides drainage to agricultural areas of northern Sacramento County and a large, rapidly urbanizing metropolitan area, including Dry, Arcade, Robla and Magpie Creeks; and a large portion of the western Rio Linda and Elverta areas north of the confluence with Dry Creek up to Sankey Road. Stormwater drainage from NEMDC/Steelhead Creek flows passively into the Site 18A seasonal wetland through a relatively small (30-inch diameter) culvert located at the northwest corner of the basin. The culvert passes under the heavily used, paved American River Parkway bike trail and extends 170 feet from the basin to the left (south) bank of NEMDC/Steelhead Creek. During moderately high-flow conditions, water from the Sacramento and lower American River causes NEMDC/Steelhead Creek to backup and overflow into Site 18A through the culvert that connects NEMDC/Steelhead Creek to the Site 18A basin, and by overtopping of the surrounding low berm/bike trail embankment surrounding the Site 18A basin. The culvert also serves to direct waters back into NEMDC/Steelhead Creek as flood flows recede.

SOLID WASTE

Solid waste collection services in Sacramento, including residential and a small portion of commercial garbage pickup, recycling, and yard waste hauling, are provided by the City's Recycling and Solid Waste Division.

The primary location for disposal of solid waste for the City of Sacramento is the Sacramento County Kiefer Landfill located at 12701 Kiefer Boulevard, Sloughhouse, California. The landfill permits 10,815 tons per day and averages 6,300 tons per day. As of 2012, 305 acres of 660 available acres have been used and the landfill is expected to have capacity through 2065. Construction and demolition waste, which is collected by both the City's fleet and private companies, may also be disposed of at the Yolo County, Forward, and L and D Landfills. Yolo County Landfill permits 2,800 tons per day of solid waste disposal. Forward Landfill permits 8,668 tons per day. L and D Landfill permits 6665 tons per day. (City of Sacramento 2014)

3.17.2 DISCUSSION

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

No Impact. The proposed project would involve replacement of an existing culvert to more openly connect the Site 18A flood basin to NEMDC/Steelhead Creek and grading of existing interior drainage swales, thereby reducing the potential for fish stranding in the Site 18A basin. The proposed project would not generate wastewater or result in a change in the water quality of wastewater discharges at existing wastewater treatment facilities. Therefore, the proposed project would not cause or contribute to an exceedance of wastewater treatment requirements of the Central Valley RWQCB. There would be no impact and no mitigation would be required.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. See item a). The proposed project would require periodic irrigation during the first 5 years to support revegetation of disturbed areas and establishment of new plantings within and adjacent to the swales in the Site 18A basin. An estimated 840 gallons of water over a 7 month period would be required during the first year of irrigation. Irrigation requirements would likely to be less after the first year. Irrigation water would be supplied either by a temporary irrigation system that would pump water from NEMDC/Steelhead Creek or by water truck deliveries. Therefore, the proposed project would not require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, and there would be no impact and no mitigation would be required.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project would include construction of a larger (wider and higher) culvert to replace the existing culvert that connects NEMDC/Steelhead Creek with the Site 18A basin thereby improving connectivity of the floodplain. NEMDC/Steelhead Creek is a drainage canal whose waters have been interacting with the Site 18A basin since the excavation of borrow material and installation of the culvert in 1996. The Site 18A basin can hold a small fraction of the total NEMDC/Steelhead Creek capacity, and the volume of the basin would remain unchanged. Therefore, the proposed project would not affect other storm drainage or municipal infrastructure, and there would be no impact and no mitigation would be required.

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

No Impact. See item b). Existing water sources would be sufficient to supply irrigation needs of the proposed project. New or expanded entitlements would not be needed. There would be no impact and no mitigation would be required.

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

No Impact. See item a). The proposed project would not generate wastewater, and therefore, would not create additional demand for wastewater treatment. There would be no impact and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project would cause a temporary increase in the generation of solid waste from construction activities. Construction of the temporary asphalt concrete bike trail needed to provide access to the northwest corner of Site 18A would require approximately 10 cubic yards of asphalt concrete. After replacement of the culvert is completed, the temporary asphalt concrete bike trail would be removed. Kiefer Landfill is the primary location for disposal of solid waste for the City of Sacramento. Construction waste could also be sent to the L and D, Yolo County, Central, or Forward Landfills. As described in the "Environmental Setting," landfill capacities at these sites would be large enough to serve the short-term construction-related disposal needs of the proposed project. Alternatively, the material would be trucked to a recycling facility, which would result in no use of landfill capacity. Therefore, this impact would be a less than significant and no mitigation would be required.

g) Comply with Federal, State, and local statutes and regulations related to solid waste?

No Impact. See item f). The transportation and disposal of solid waste would be in accordance with applicable Federal, State, and local statutes and regulations. There would be no impact and no mitigation would be required.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Authority: Public Resources Code Sections 21083, 21083.5.

Reference: Government Code Sections 65088.4.
Public Resources Code Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

3.18.1 DISCUSSION

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated. The analysis conducted in this IS concludes that the proposed project with mitigation would not have a significant effect on the physical environment.

As evaluated in Section 3.4, "Biological Resources," the proposed project could have potential adverse effects on special-status wildlife, nesting birds, and sensitive habitats. However, with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4 included in Section 3.4, these impacts would be reduced to a less-than-significant level.

As evaluated in Section 3.5, “Cultural Resources,” the proposed project would have no impact on examples of major periods of California history or prehistory. However, the proposed project would have the potential to adversely affect soils and water quality, increase noise levels and traffic hazards, and expose the public and the environment to hazards materials and fires.

Section 3.6.1(b) provides mitigation for potentially significant impacts associated with temporary and short-term construction-related erosion. Implementation of Mitigation Measures GEO-1and HYD-1, included in Sections 3.6 and 3.9, respectively, would reduce potential erosion impacts to a less-than-significant level. Section 3.8(a), 3.8(b), and 3.8(h) provide mitigation for potentially significant impacts related to exposure of the public or the environment to hazardous materials or fires. Implementation of Mitigation Measures HAZ-1, and HAZ-2, and Mitigation Measure HYD-1, included in Sections 3.8, “Hazards and Hazardous Materials and 3.9, respectively, would reduce these potential impacts to a less-than-significant level. Section 3.9(a) and 3.9(f) provide mitigation for potentially significant impacts to water quality. Implementation of Mitigation Measure HYD-1, included in Section 3.9, “Hydrology and Water Quality,” would reduce these potential impacts to a less-than-significant level. Section 3.12(a) and 3.12(d) provide mitigation for potentially significant temporary and short-term construction-related noise impacts. Implementation of Mitigation Measures NOI-1, included in Section 3.12, “Noise,” would reduce potential construction-related traffic noise impacts to a less-than-significant level. Section 3.16(e) provides mitigation for potentially significant construction-related traffic hazards. Implementation of Mitigation Measures TRA-1, included in Section 3.16, “Transportation/Traffic,” would reduce these potential impacts to a less-than-significant level.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less-than-Significant Impact. Construction of the proposed project would result in temporary and short-term impacts that would be primarily limited to the project site and immediate vicinity. Although impacts related to resources such as air quality, greenhouse gas emissions would contribute to regional impacts, these impacts when combined with other past, present, and reasonably foreseeable future projects in the project vicinity would not be cumulatively considerable, primarily because of the relative small size of the proposed project. Also, as noted in Section 3.3, “Air Quality,” construction-generated and operational emissions would not exceed applicable thresholds established by the Sacramento Metropolitan Air Quality Management District. Thus, the proposed project would not be expected to result in a cumulatively considerable incremental contribution to the significant cumulative impact associated with air pollutant emissions.

As discussed in this IS, the proposed project would result in less-than-significant impacts or no impacts on the following areas: aesthetics, agriculture and forestry resources, air quality, cultural resources, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, and utilities and service systems. Furthermore, mitigation measures have been included in this IS that would reduce impacts to a less-than-significant level in the following areas: biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic. Therefore, all impacts would be less than significant or would be reduced to a less-than-significant level through incorporation of required mitigation measures, and the proposed project would not make a cumulatively considerable incremental contribution to significant cumulative adverse impacts on those resource areas. The incremental effects of the

proposed project would not be cumulatively considerable when viewed in connection with the effects of past, present, and reasonably foreseeable future projects. This impact would be less than significant.

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

Less-than-Significant Impact. As discussed throughout this IS, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. The proposed project is intended to reduce the potential for fish stranding by improving drainage, flow path, and connectivity between Site 18A and the Natomas East Main Drainage Canal/Steelhead Creek; improve accessibility to floodplain rearing habitat; and enhance ecosystem function through improving habitat quality and diversity, including improvements to soil conditions to boost growth potential of riparian and seasonal wetland vegetation. Mitigation measures are provided to reduce the proposed project's potentially significant effects on biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic to a less-than-significant level. Thus, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. This impact would be less than significant.

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APPENDIX A

Air Quality and Greenhouse Gas Emissions Modeling Results

SAFCA 18A Construction Equipment

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2015
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Construction Off-road Equipment Mitigation - potential mitigation of Tier 3 for large equipment (graders, excavators, and bulldozer)

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
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tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	6/11/2015	6/12/2015

tblConstructionPhase	PhaseEndDate	6/11/2015	6/10/2015
tblConstructionPhase	PhaseStartDate	5/10/2015	5/11/2015
tblConstructionPhase	PhaseStartDate	5/31/2015	6/1/2015
tblConstructionPhase	PhaseStartDate	6/11/2015	6/12/2015
tblConstructionPhase	PhaseStartDate	6/9/2015	6/8/2015
tblOffRoadEquipment	HorsePower	174.00	162.00
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tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	97.00	75.00
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tblOffRoadEquipment	LoadFactor	0.74	0.50
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tblOffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Rollers
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Rollers

tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Pavers
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Pumps
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tblOffRoadEquipment	PhaseName		Swale Grading
tblOffRoadEquipment	PhaseName		Backfill and Grading
tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Deep Ripping and Soil
tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Excavation

tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Backfill and Grading
tblOffRoadEquipment	PhaseName		Irrigation
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	OperationalYear	2014	2015

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	3.1230	34.1061	22.5531	0.0219	0.0000	1.8534	1.8534	0.0000	1.7312	1.7312	0.0000	2,215.0667	2,215.0667	0.6458	0.0000	2,228.6291
Total	**3.1230**	**34.1061**	**22.5531**	**0.0219**	**0.0000**	**1.8534**	**1.8534**	**0.0000**	**1.7312**	**1.7312**	**0.0000**	**2,215.0667**	**2,215.0667**	**0.6458**	**0.0000**	**2,228.6291**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	2.1126	19.5742	15.5485	0.0219	0.0000	1.3610	1.3610	0.0000	1.2899	1.2899	0.0000	2,215.0667	2,215.0667	0.6458	0.0000	2,228.6291
Total	**2.1126**	**19.5742**	**15.5485**	**0.0219**	**0.0000**	**1.3610**	**1.3610**	**0.0000**	**1.2899**	**1.2899**	**0.0000**	**2,215.0667**	**2,215.0667**	**0.6458**	**0.0000**	**2,228.6291**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**32.35**	**42.61**	**31.06**	**0.00**	**0.00**	**26.57**	**26.57**	**0.00**	**25.49**	**25.49**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Installation	Building Construction	5/1/2015	5/4/2015	6	3	
2	Removal	Building Construction	5/5/2015	5/5/2015	6	1	
3	Excavation	Building Construction	5/6/2015	5/9/2015	6	4	
4	Install Culvert and Rip-Rap	Building Construction	5/11/2015	5/30/2015	6	18	
5	Backfill and Grading	Building Construction	6/1/2015	6/5/2015	5	5	
6	Swale Grading	Building Construction	6/6/2015	6/8/2015	6	2	
7	Deep Ripping and Soil	Building Construction	6/8/2015	6/10/2015	6	3	
8	Irrigation	Building Construction	6/12/2015	6/12/2015	6	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Swale Grading	Graders	1	9.00	162	0.41
Backfill and Grading	Graders	1	9.00	162	0.41
Installation	Graders	1	9.00	162	0.41
Install Culvert and Rip-Rap	Pumps	1	9.00	84	0.50
Install Culvert and Rip-Rap	Graders	1	9.00	162	0.41
Install Culvert and Rip-Rap	Plate Compactors	2	9.00	8	0.43
Deep Ripping and Soil	Rubber Tired Dozers	1	9.00	358	0.40
Installation	Rollers	1	9.00	84	0.38
Install Culvert and Rip-Rap	Rollers	3	9.00	84	0.38
Excavation	Excavators	1	9.00	157	0.38
Removal	Tractors/Loaders/Backhoes	1	9.00	75	0.37
Installation	Pavers	1	9.00	89	0.42
Backfill and Grading	Excavators	1	9.00	157	0.38
Irrigation	Pumps	1	8.00	84	0.50
Installation	Tractors/Loaders/Backhoes	1	9.00	75	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Installation	4	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Removal	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Install Culvert and Rip-Rap	7	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Backfill and Grading	2	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Swale Grading	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Irrigation	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Clean Paved Roads

3.2 Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3627	22.8952	12.5488	0.0159		1.5253	1.5253		1.4032	1.4032		1,676.1036	1,676.1036	0.5004		1,686.6117
Total	**2.3627**	**22.8952**	**12.5488**	**0.0159**		**1.5253**	**1.5253**		**1.4032**	**1.4032**		**1,676.1036**	**1,676.1036**	**0.5004**		**1,686.6117**

3.2 Installation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4087	14.5696	12.2081	0.0159		1.0328	1.0328		0.9620	0.9620	0.0000	1,676.1036	1,676.1036	0.5004		1,686.6117
Total	**1.4087**	**14.5696**	**12.2081**	**0.0159**		**1.0328**	**1.0328**		**0.9620**	**0.9620**	**0.0000**	**1,676.1036**	**1,676.1036**	**0.5004**		**1,686.6117**

3.2 Installation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Removal - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3135	2.9854	2.1099	2.7100e-003		0.2337	0.2337		0.2150	0.2150		284.8636	284.8636	0.0850		286.6495
Total	**0.3135**	**2.9854**	**2.1099**	**2.7100e-003**		**0.2337**	**0.2337**		**0.2150**	**0.2150**		**284.8636**	**284.8636**	**0.0850**		**286.6495**

3.3 Removal - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3135	2.9854	2.1099	2.7100e-003		0.2337	0.2337		0.2150	0.2150	0.0000	284.8636	284.8636	0.0850		286.6495
Total	**0.3135**	**2.9854**	**2.1099**	**2.7100e-003**		**0.2337**	**0.2337**		**0.2150**	**0.2150**	**0.0000**	**284.8636**	**284.8636**	**0.0850**		**286.6495**

3.3 Removal - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Excavation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4542	5.3040	3.7497	5.7700e-003		0.2618	0.2618		0.2409	0.2409		605.7094	605.7094	0.1808		609.5068
Total	**0.4542**	**5.3040**	**3.7497**	**5.7700e-003**		**0.2618**	**0.2618**		**0.2409**	**0.2409**		**605.7094**	**605.7094**	**0.1808**		**609.5068**

3.4 Excavation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1421	2.7463	4.3799	5.7700e-003		0.1326	0.1326		0.1326	0.1326	0.0000	605.7094	605.7094	0.1808		609.5068
Total	**0.1421**	**2.7463**	**4.3799**	**5.7700e-003**		**0.1326**	**0.1326**		**0.1326**	**0.1326**	**0.0000**	**605.7094**	**605.7094**	**0.1808**		**609.5068**

3.4 Excavation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Install Culvert and Rip-Rap - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0666	27.8998	15.8891	0.0219		1.8534	1.8534		1.7312	1.7312		2,215.0667	2,215.0667	0.5556		2,226.7349
Total	**3.0666**	**27.8998**	**15.8891**	**0.0219**		**1.8534**	**1.8534**		**1.7312**	**1.7312**		**2,215.0667**	**2,215.0667**	**0.5556**		**2,226.7349**

3.5 Install Culvert and Rip-Rap - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1126	19.5742	15.5485	0.0219		1.3610	1.3610		1.2899	1.2899	0.0000	2,215.0667	2,215.0667	0.5556		2,226.7349
Total	**2.1126**	**19.5742**	**15.5485**	**0.0219**		**1.3610**	**1.3610**		**1.2899**	**1.2899**	**0.0000**	**2,215.0667**	**2,215.0667**	**0.5556**		**2,226.7349**

3.5 Install Culvert and Rip-Rap - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Backfill and Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5664	16.6871	8.9665	0.0123		0.9018	0.9018		0.8297	0.8297		1,293.9299	1,293.9299	0.3863		1,302.0420
Total	**1.5664**	**16.6871**	**8.9665**	**0.0123**		**0.9018**	**0.9018**		**0.8297**	**0.8297**		**1,293.9299**	**1,293.9299**	**0.3863**		**1,302.0420**

3.6 Backfill and Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3002	5.8038	9.2560	0.0123		0.2802	0.2802		0.2802	0.2802	0.0000	1,293.9299	1,293.9299	0.3863		1,302.0420
Total	**0.3002**	**5.8038**	**9.2560**	**0.0123**		**0.2802**	**0.2802**		**0.2802**	**0.2802**	**0.0000**	**1,293.9299**	**1,293.9299**	**0.3863**		**1,302.0420**

3.6 Backfill and Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Swale Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1122	11.3831	5.2168	6.5400e-003		0.6400	0.6400		0.5888	0.5888		688.2205	688.2205	0.2055		692.5352
Total	**1.1122**	**11.3831**	**5.2168**	**6.5400e-003**		**0.6400**	**0.6400**		**0.5888**	**0.5888**		**688.2205**	**688.2205**	**0.2055**		**692.5352**

3.7 Swale Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1582	3.0575	4.8762	6.5400e-003		0.1476	0.1476		0.1476	0.1476	0.0000	688.2205	688.2205	0.2055		692.5352
Total	**0.1582**	**3.0575**	**4.8762**	**6.5400e-003**		**0.1476**	**0.1476**		**0.1476**	**0.1476**	**0.0000**	**688.2205**	**688.2205**	**0.2055**		**692.5352**

3.7 Swale Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Deep Ripping and Soil - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0108	22.7231	17.3363	0.0140		1.0602	1.0602		0.9754	0.9754		1,475.0620	1,475.0620	0.4404		1,484.3097
Total	**2.0108**	**22.7231**	**17.3363**	**0.0140**		**1.0602**	**1.0602**		**0.9754**	**0.9754**		**1,475.0620**	**1,475.0620**	**0.4404**		**1,484.3097**

3.8 Deep Ripping and Soil - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3410	6.5919	7.3874	0.0140		0.2500	0.2500		0.2500	0.2500	0.0000	1,475.0620	1,475.0620	0.4404		1,484.3097
Total	**0.3410**	**6.5919**	**7.3874**	**0.0140**		**0.2500**	**0.2500**		**0.2500**	**0.2500**	**0.0000**	**1,475.0620**	**1,475.0620**	**0.4404**		**1,484.3097**

3.9 Irrigation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5030	3.5867	2.6326	4.4400e-003		0.2696	0.2696		0.2696	0.2696		420.9700	420.9700	0.0452		421.9190
Total	**0.5030**	**3.5867**	**2.6326**	**4.4400e-003**		**0.2696**	**0.2696**		**0.2696**	**0.2696**		**420.9700**	**420.9700**	**0.0452**		**421.9190**

3.9 Irrigation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5030	3.5867	2.6326	4.4400e-003		0.2696	0.2696		0.2696	0.2696	0.0000	420.9700	420.9700	0.0452		421.9190
Total	**0.5030**	**3.5867**	**2.6326**	**4.4400e-003**		**0.2696**	**0.2696**		**0.2696**	**0.2696**	**0.0000**	**420.9700**	**420.9700**	**0.0452**		**421.9190**

3.9 Irrigation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504472	0.068177	0.177914	0.148798	0.045219	0.006392	0.019958	0.015471	0.002301	0.002330	0.006201	0.000579	0.002187

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

5.0 Energy Detail

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

SAFCA 18A Construction Equipment

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2015
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Construction Off-road Equipment Mitigation - potential mitigation of Tier 3 for large equipment (graders, excavators, and bulldozer)

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	NumDays	0.00	18.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	4.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	6/11/2015	6/12/2015

tblConstructionPhase	PhaseEndDate	6/11/2015	6/10/2015
tblConstructionPhase	PhaseStartDate	5/10/2015	5/11/2015
tblConstructionPhase	PhaseStartDate	5/31/2015	6/1/2015
tblConstructionPhase	PhaseStartDate	6/11/2015	6/12/2015
tblConstructionPhase	PhaseStartDate	6/9/2015	6/8/2015
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	LoadFactor	0.74	0.50
tblOffRoadEquipment	LoadFactor	0.74	0.50
tblOffRoadEquipment	OffRoadEquipmentType	Air Compressors	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Rollers
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Rollers

tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Pavers
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName		Swale Grading
tblOffRoadEquipment	PhaseName		Backfill and Grading
tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Deep Ripping and Soil
tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Excavation

tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Backfill and Grading
tblOffRoadEquipment	PhaseName		Irrigation
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	OperationalYear	2014	2015

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	3.1230	34.1061	22.5531	0.0219	0.0000	1.8534	1.8534	0.0000	1.7312	1.7312	0.0000	2,215.0667	2,215.0667	0.6458	0.0000	2,228.6291
Total	**3.1230**	**34.1061**	**22.5531**	**0.0219**	**0.0000**	**1.8534**	**1.8534**	**0.0000**	**1.7312**	**1.7312**	**0.0000**	**2,215.0667**	**2,215.0667**	**0.6458**	**0.0000**	**2,228.6291**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	2.1126	19.5742	15.5485	0.0219	0.0000	1.3610	1.3610	0.0000	1.2899	1.2899	0.0000	2,215.0667	2,215.0667	0.6458	0.0000	2,228.6291
Total	**2.1126**	**19.5742**	**15.5485**	**0.0219**	**0.0000**	**1.3610**	**1.3610**	**0.0000**	**1.2899**	**1.2899**	**0.0000**	**2,215.0667**	**2,215.0667**	**0.6458**	**0.0000**	**2,228.6291**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**32.35**	**42.61**	**31.06**	**0.00**	**0.00**	**26.57**	**26.57**	**0.00**	**25.49**	**25.49**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Installation	Building Construction	5/1/2015	5/4/2015	6	3	
2	Removal	Building Construction	5/5/2015	5/5/2015	6	1	
3	Excavation	Building Construction	5/6/2015	5/9/2015	6	4	
4	Install Culvert and Rip-Rap	Building Construction	5/11/2015	5/30/2015	6	18	
5	Backfill and Grading	Building Construction	6/1/2015	6/5/2015	5	5	
6	Swale Grading	Building Construction	6/6/2015	6/8/2015	6	2	
7	Deep Ripping and Soil	Building Construction	6/8/2015	6/10/2015	6	3	
8	Irrigation	Building Construction	6/12/2015	6/12/2015	6	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Swale Grading	Graders	1	9.00	162	0.41
Backfill and Grading	Graders	1	9.00	162	0.41
Installation	Graders	1	9.00	162	0.41
Install Culvert and Rip-Rap	Pumps	1	9.00	84	0.50
Install Culvert and Rip-Rap	Graders	1	9.00	162	0.41
Install Culvert and Rip-Rap	Plate Compactors	2	9.00	8	0.43
Deep Ripping and Soil	Rubber Tired Dozers	1	9.00	358	0.40
Installation	Rollers	1	9.00	84	0.38
Install Culvert and Rip-Rap	Rollers	3	9.00	84	0.38
Excavation	Excavators	1	9.00	157	0.38
Removal	Tractors/Loaders/Backhoes	1	9.00	75	0.37
Installation	Pavers	1	9.00	89	0.42
Backfill and Grading	Excavators	1	9.00	157	0.38
Irrigation	Pumps	1	8.00	84	0.50
Installation	Tractors/Loaders/Backhoes	1	9.00	75	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Installation	4	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Removal	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Install Culvert and Rip-Rap	7	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Backfill and Grading	2	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Swale Grading	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Irrigation	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Clean Paved Roads

3.2 Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3627	22.8952	12.5488	0.0159		1.5253	1.5253		1.4032	1.4032		1,676.1036	1,676.1036	0.5004		1,686.6117
Total	**2.3627**	**22.8952**	**12.5488**	**0.0159**		**1.5253**	**1.5253**		**1.4032**	**1.4032**		**1,676.1036**	**1,676.1036**	**0.5004**		**1,686.6117**

3.2 Installation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4087	14.5696	12.2081	0.0159		1.0328	1.0328		0.9620	0.9620	0.0000	1,676.1036	1,676.1036	0.5004		1,686.6117
Total	**1.4087**	**14.5696**	**12.2081**	**0.0159**		**1.0328**	**1.0328**		**0.9620**	**0.9620**	**0.0000**	**1,676.1036**	**1,676.1036**	**0.5004**		**1,686.6117**

3.2 Installation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Removal - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3135	2.9854	2.1099	2.7100e-003		0.2337	0.2337		0.2150	0.2150		284.8636	284.8636	0.0850		286.6495
Total	**0.3135**	**2.9854**	**2.1099**	**2.7100e-003**		**0.2337**	**0.2337**		**0.2150**	**0.2150**		**284.8636**	**284.8636**	**0.0850**		**286.6495**

3.3 Removal - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3135	2.9854	2.1099	2.7100e-003		0.2337	0.2337		0.2150	0.2150	0.0000	284.8636	284.8636	0.0850		286.6495
Total	**0.3135**	**2.9854**	**2.1099**	**2.7100e-003**		**0.2337**	**0.2337**		**0.2150**	**0.2150**	**0.0000**	**284.8636**	**284.8636**	**0.0850**		**286.6495**

3.3 Removal - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Excavation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4542	5.3040	3.7497	5.7700e-003		0.2618	0.2618		0.2409	0.2409		605.7094	605.7094	0.1808		609.5068
Total	**0.4542**	**5.3040**	**3.7497**	**5.7700e-003**		**0.2618**	**0.2618**		**0.2409**	**0.2409**		**605.7094**	**605.7094**	**0.1808**		**609.5068**

3.4 Excavation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1421	2.7463	4.3799	5.7700e-003		0.1326	0.1326		0.1326	0.1326	0.0000	605.7094	605.7094	0.1808		609.5068
Total	**0.1421**	**2.7463**	**4.3799**	**5.7700e-003**		**0.1326**	**0.1326**		**0.1326**	**0.1326**	**0.0000**	**605.7094**	**605.7094**	**0.1808**		**609.5068**

3.4 Excavation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Install Culvert and Rip-Rap - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0666	27.8998	15.8891	0.0219		1.8534	1.8534		1.7312	1.7312		2,215.0667	2,215.0667	0.5556		2,226.7349
Total	**3.0666**	**27.8998**	**15.8891**	**0.0219**		**1.8534**	**1.8534**		**1.7312**	**1.7312**		**2,215.0667**	**2,215.0667**	**0.5556**		**2,226.7349**

3.5 Install Culvert and Rip-Rap - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1126	19.5742	15.5485	0.0219		1.3610	1.3610		1.2899	1.2899	0.0000	2,215.0667	2,215.0667	0.5556		2,226.7349
Total	**2.1126**	**19.5742**	**15.5485**	**0.0219**		**1.3610**	**1.3610**		**1.2899**	**1.2899**	**0.0000**	**2,215.0667**	**2,215.0667**	**0.5556**		**2,226.7349**

3.5 Install Culvert and Rip-Rap - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Backfill and Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5664	16.6871	8.9665	0.0123		0.9018	0.9018		0.8297	0.8297		1,293.9299	1,293.9299	0.3863		1,302.0420
Total	**1.5664**	**16.6871**	**8.9665**	**0.0123**		**0.9018**	**0.9018**		**0.8297**	**0.8297**		**1,293.9299**	**1,293.9299**	**0.3863**		**1,302.0420**

3.6 Backfill and Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3002	5.8038	9.2560	0.0123		0.2802	0.2802		0.2802	0.2802	0.0000	1,293.9299	1,293.9299	0.3863		1,302.0420
Total	**0.3002**	**5.8038**	**9.2560**	**0.0123**		**0.2802**	**0.2802**		**0.2802**	**0.2802**	**0.0000**	**1,293.9299**	**1,293.9299**	**0.3863**		**1,302.0420**

3.6 Backfill and Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Swale Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1122	11.3831	5.2168	6.5400e-003		0.6400	0.6400		0.5888	0.5888		688.2205	688.2205	0.2055		692.5352
Total	**1.1122**	**11.3831**	**5.2168**	**6.5400e-003**		**0.6400**	**0.6400**		**0.5888**	**0.5888**		**688.2205**	**688.2205**	**0.2055**		**692.5352**

3.7 Swale Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1582	3.0575	4.8762	6.5400e-003		0.1476	0.1476		0.1476	0.1476	0.0000	688.2205	688.2205	0.2055		692.5352
Total	**0.1582**	**3.0575**	**4.8762**	**6.5400e-003**		**0.1476**	**0.1476**		**0.1476**	**0.1476**	**0.0000**	**688.2205**	**688.2205**	**0.2055**		**692.5352**

3.7 Swale Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Deep Ripping and Soil - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0108	22.7231	17.3363	0.0140		1.0602	1.0602		0.9754	0.9754		1,475.0620	1,475.0620	0.4404		1,484.3097
Total	**2.0108**	**22.7231**	**17.3363**	**0.0140**		**1.0602**	**1.0602**		**0.9754**	**0.9754**		**1,475.0620**	**1,475.0620**	**0.4404**		**1,484.3097**

3.8 Deep Ripping and Soil - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3410	6.5919	7.3874	0.0140		0.2500	0.2500		0.2500	0.2500	0.0000	1,475.0620	1,475.0620	0.4404		1,484.3097
Total	**0.3410**	**6.5919**	**7.3874**	**0.0140**		**0.2500**	**0.2500**		**0.2500**	**0.2500**	**0.0000**	**1,475.0620**	**1,475.0620**	**0.4404**		**1,484.3097**

3.9 Irrigation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5030	3.5867	2.6326	4.4400e-003		0.2696	0.2696		0.2696	0.2696		420.9700	420.9700	0.0452		421.9190
Total	**0.5030**	**3.5867**	**2.6326**	**4.4400e-003**		**0.2696**	**0.2696**		**0.2696**	**0.2696**		**420.9700**	**420.9700**	**0.0452**		**421.9190**

3.9 Irrigation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5030	3.5867	2.6326	4.4400e-003		0.2696	0.2696		0.2696	0.2696	0.0000	420.9700	420.9700	0.0452		421.9190
Total	**0.5030**	**3.5867**	**2.6326**	**4.4400e-003**		**0.2696**	**0.2696**		**0.2696**	**0.2696**	**0.0000**	**420.9700**	**420.9700**	**0.0452**		**421.9190**

3.9 Irrigation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504472	0.068177	0.177914	0.148798	0.045219	0.006392	0.019958	0.015471	0.002301	0.002330	0.006201	0.000579	0.002187

4.4 Fleet Mix

Historical Energy Use: N

5.0 Energy Detail

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

SAFCA 18A Construction Equipment

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2015
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Off-road Equipment - PD

Construction Off-road Equipment Mitigation - potential mitigation of Tier 3 for large equipment (graders, excavators, and bulldozer)

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	NumDays	0.00	18.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	4.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	6/11/2015	6/12/2015

tblConstructionPhase	PhaseEndDate	6/11/2015	6/10/2015
tblConstructionPhase	PhaseStartDate	5/10/2015	5/11/2015
tblConstructionPhase	PhaseStartDate	5/31/2015	6/1/2015
tblConstructionPhase	PhaseStartDate	6/11/2015	6/12/2015
tblConstructionPhase	PhaseStartDate	6/9/2015	6/8/2015
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	LoadFactor	0.74	0.50
tblOffRoadEquipment	LoadFactor	0.74	0.50
tblOffRoadEquipment	OffRoadEquipmentType	Air Compressors	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Graders
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Rollers
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Rollers

tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Pavers
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName		Swale Grading
tblOffRoadEquipment	PhaseName		Backfill and Grading
tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Deep Ripping and Soil
tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Install Culvert and Rip-Rap
tblOffRoadEquipment	PhaseName		Excavation

tblOffRoadEquipment	PhaseName		Installation
tblOffRoadEquipment	PhaseName		Backfill and Grading
tblOffRoadEquipment	PhaseName		Irrigation
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	OperationalYear	2014	2015

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0405	0.3865	0.2253	2.9000e-004	0.0000	0.0242	0.0242	0.0000	0.0225	0.0225	0.0000	27.3514	27.3514	7.2700e-003	0.0000	27.5040
Total	**0.0405**	**0.3865**	**0.2253**	**2.9000e-004**	**0.0000**	**0.0242**	**0.0242**	**0.0000**	**0.0225**	**0.0225**	**0.0000**	**27.3514**	**27.3514**	**7.2700e-003**	**0.0000**	**27.5040**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0232	0.2343	0.2085	2.9000e-004	0.0000	0.0155	0.0155	0.0000	0.0148	0.0148	0.0000	27.3513	27.3513	7.2700e-003	0.0000	27.5039
Total	**0.0232**	**0.2343**	**0.2085**	**2.9000e-004**	**0.0000**	**0.0155**	**0.0155**	**0.0000**	**0.0148**	**0.0148**	**0.0000**	**27.3513**	**27.3513**	**7.2700e-003**	**0.0000**	**27.5039**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**42.62**	**39.39**	**7.48**	**0.00**	**0.00**	**35.86**	**35.86**	**0.00**	**34.43**	**34.43**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Installation	Building Construction	5/1/2015	5/4/2015	6	3	
2	Removal	Building Construction	5/5/2015	5/5/2015	6	1	
3	Excavation	Building Construction	5/6/2015	5/9/2015	6	4	
4	Install Culvert and Rip-Rap	Building Construction	5/11/2015	5/30/2015	6	18	
5	Backfill and Grading	Building Construction	6/1/2015	6/5/2015	5	5	
6	Swale Grading	Building Construction	6/6/2015	6/8/2015	6	2	
7	Deep Ripping and Soil	Building Construction	6/8/2015	6/10/2015	6	3	
8	Irrigation	Building Construction	6/12/2015	6/12/2015	6	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Swale Grading	Graders	1	9.00	162	0.41
Backfill and Grading	Graders	1	9.00	162	0.41
Installation	Graders	1	9.00	162	0.41
Install Culvert and Rip-Rap	Pumps	1	9.00	84	0.50
Install Culvert and Rip-Rap	Graders	1	9.00	162	0.41
Install Culvert and Rip-Rap	Plate Compactors	2	9.00	8	0.43
Deep Ripping and Soil	Rubber Tired Dozers	1	9.00	358	0.40
Installation	Rollers	1	9.00	84	0.38
Install Culvert and Rip-Rap	Rollers	3	9.00	84	0.38
Excavation	Excavators	1	9.00	157	0.38
Removal	Tractors/Loaders/Backhoes	1	9.00	75	0.37
Installation	Pavers	1	9.00	89	0.42
Backfill and Grading	Excavators	1	9.00	157	0.38
Irrigation	Pumps	1	8.00	84	0.50
Installation	Tractors/Loaders/Backhoes	1	9.00	75	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Installation	4	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Removal	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Install Culvert and Rip-Rap	7	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Backfill and Grading	2	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Swale Grading	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Irrigation	1	0.00			10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Clean Paved Roads

3.2 Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5400e-003	0.0343	0.0188	2.0000e-005		2.2900e-003	2.2900e-003		2.1000e-003	2.1000e-003	0.0000	2.2808	2.2808	6.8000e-004	0.0000	2.2951
Total	**3.5400e-003**	**0.0343**	**0.0188**	**2.0000e-005**		**2.2900e-003**	**2.2900e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**2.2808**	**2.2808**	**6.8000e-004**	**0.0000**	**2.2951**

3.2 Installation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1100e-003	0.0219	0.0183	2.0000e-005		1.5500e-003	1.5500e-003		1.4400e-003	1.4400e-003	0.0000	2.2808	2.2808	6.8000e-004	0.0000	2.2951
Total	**2.1100e-003**	**0.0219**	**0.0183**	**2.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.4400e-003**	**1.4400e-003**	**0.0000**	**2.2808**	**2.2808**	**6.8000e-004**	**0.0000**	**2.2951**

3.2 Installation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Removal - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6000e-004	1.4900e-003	1.0500e-003	0.0000		1.2000e-004	1.2000e-004		1.1000e-004	1.1000e-004	0.0000	0.1292	0.1292	4.0000e-005	0.0000	0.1300
Total	**1.6000e-004**	**1.4900e-003**	**1.0500e-003**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.1292**	**0.1292**	**4.0000e-005**	**0.0000**	**0.1300**

3.3 Removal - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6000e-004	1.4900e-003	1.0500e-003	0.0000		1.2000e-004	1.2000e-004		1.1000e-004	1.1000e-004	0.0000	0.1292	0.1292	4.0000e-005	0.0000	0.1300
Total	**1.6000e-004**	**1.4900e-003**	**1.0500e-003**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.1292**	**0.1292**	**4.0000e-005**	**0.0000**	**0.1300**

3.3 Removal - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Excavation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1000e-004	0.0106	7.5000e-003	1.0000e-005		5.2000e-004	5.2000e-004		4.8000e-004	4.8000e-004	0.0000	1.0990	1.0990	3.3000e-004	0.0000	1.1059
Total	**9.1000e-004**	**0.0106**	**7.5000e-003**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**	**1.0990**	**1.0990**	**3.3000e-004**	**0.0000**	**1.1059**

3.4 Excavation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-004	5.4900e-003	8.7600e-003	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	1.0990	1.0990	3.3000e-004	0.0000	1.1059
Total	**2.8000e-004**	**5.4900e-003**	**8.7600e-003**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**1.0990**	**1.0990**	**3.3000e-004**	**0.0000**	**1.1059**

3.4 Excavation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Install Culvert and Rip-Rap - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2511	0.1430	2.0000e-004		0.0167	0.0167		0.0156	0.0156	0.0000	18.0853	18.0853	4.5400e-003	0.0000	18.1805
Total	**0.0276**	**0.2511**	**0.1430**	**2.0000e-004**		**0.0167**	**0.0167**		**0.0156**	**0.0156**	**0.0000**	**18.0853**	**18.0853**	**4.5400e-003**	**0.0000**	**18.1805**

3.5 Install Culvert and Rip-Rap - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0190	0.1762	0.1399	2.0000e-004		0.0123	0.0123		0.0116	0.0116	0.0000	18.0853	18.0853	4.5400e-003	0.0000	18.1805
Total	**0.0190**	**0.1762**	**0.1399**	**2.0000e-004**		**0.0123**	**0.0123**		**0.0116**	**0.0116**	**0.0000**	**18.0853**	**18.0853**	**4.5400e-003**	**0.0000**	**18.1805**

3.5 Install Culvert and Rip-Rap - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Backfill and Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9200e-003	0.0417	0.0224	3.0000e-005		2.2500e-003	2.2500e-003		2.0700e-003	2.0700e-003	0.0000	2.9346	2.9346	8.8000e-004	0.0000	2.9530
Total	**3.9200e-003**	**0.0417**	**0.0224**	**3.0000e-005**		**2.2500e-003**	**2.2500e-003**		**2.0700e-003**	**2.0700e-003**	**0.0000**	**2.9346**	**2.9346**	**8.8000e-004**	**0.0000**	**2.9530**

3.6 Backfill and Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.5000e-004	0.0145	0.0231	3.0000e-005		7.0000e-004	7.0000e-004		7.0000e-004	7.0000e-004	0.0000	2.9346	2.9346	8.8000e-004	0.0000	2.9530
Total	**7.5000e-004**	**0.0145**	**0.0231**	**3.0000e-005**		**7.0000e-004**	**7.0000e-004**		**7.0000e-004**	**7.0000e-004**	**0.0000**	**2.9346**	**2.9346**	**8.8000e-004**	**0.0000**	**2.9530**

3.6 Backfill and Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Swale Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1100e-003	0.0114	5.2200e-003	1.0000e-005		6.4000e-004	6.4000e-004		5.9000e-004	5.9000e-004	0.0000	0.6243	0.6243	1.9000e-004	0.0000	0.6283
Total	**1.1100e-003**	**0.0114**	**5.2200e-003**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**0.6243**	**0.6243**	**1.9000e-004**	**0.0000**	**0.6283**

3.7 Swale Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6000e-004	3.0600e-003	4.8800e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6243	0.6243	1.9000e-004	0.0000	0.6283
Total	**1.6000e-004**	**3.0600e-003**	**4.8800e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6243**	**0.6243**	**1.9000e-004**	**0.0000**	**0.6283**

3.7 Swale Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Deep Ripping and Soil - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0200e-003	0.0341	0.0260	2.0000e-005		1.5900e-003	1.5900e-003		1.4600e-003	1.4600e-003	0.0000	2.0072	2.0072	6.0000e-004	0.0000	2.0198
Total	**3.0200e-003**	**0.0341**	**0.0260**	**2.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.4600e-003**	**1.4600e-003**	**0.0000**	**2.0072**	**2.0072**	**6.0000e-004**	**0.0000**	**2.0198**

3.8 Deep Ripping and Soil - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1000e-004	9.8900e-003	0.0111	2.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	2.0072	2.0072	6.0000e-004	0.0000	2.0198
Total	**5.1000e-004**	**9.8900e-003**	**0.0111**	**2.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**2.0072**	**2.0072**	**6.0000e-004**	**0.0000**	**2.0198**

3.9 Irrigation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5000e-004	1.7900e-003	1.3200e-003	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.1910	0.1910	2.0000e-005	0.0000	0.1914
Total	**2.5000e-004**	**1.7900e-003**	**1.3200e-003**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.1910**	**0.1910**	**2.0000e-005**	**0.0000**	**0.1914**

3.9 Irrigation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5000e-004	1.7900e-003	1.3200e-003	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.1910	0.1910	2.0000e-005	0.0000	0.1914
Total	**2.5000e-004**	**1.7900e-003**	**1.3200e-003**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.1910**	**0.1910**	**2.0000e-005**	**0.0000**	**0.1914**

3.9 Irrigation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504472	0.068177	0.177914	0.148798	0.045219	0.006392	0.019958	0.015471	0.002301	0.002330	0.006201	0.000579	0.002187

4.4 Fleet Mix

Historical Energy Use: N

5.0 Energy Detail

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

SAFCA 18A
Construction Emission Summary

	Daily Emissions (lbs/day)				Annual
Construction Phase	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**MT CO_2e**
Temporary Bike Trail Realignment					
Installation	***2.50***	***24.29***	***1.70***	***1.50***	***3.79***
Off-Road Equipment	2.36	22.90	1.53	1.40	2.30
Haul Trucks	0.01	0.41	0.01	0.01	0.11
Construction Workers	0.13	0.98	0.17	0.09	1.39
Fugitive Dust	-	-	-	-	-
Removal	***0.44***	***3.96***	***0.40***	***0.31***	***0.59***
Off-Road Equipment	0.31	2.99	0.23	0.22	0.13
Haul Trucks	-	-	-	-	-
Construction Workers	0.13	0.98	0.17	0.09	0.46
Fugitive Dust	-	-	-	-	-
Culvert and Approach Channel Construction					
Excavation	***2.48***	***78.85***	***197.48***	***31.08***	***28.57***
Off-Road Equipment	0.45	5.30	0.26	0.24	1.11
Haul Trucks	1.89	72.57	1.73	1.17	25.61
Construction Workers	0.13	0.98	0.17	0.09	1.85
Fugitive Dust	-	-	195.31	29.58	-
Install Culvert and Rip-Rap Replacement	***3.28***	***31.99***	***8.61***	***2.86***	***31.43***
Off-Road Equipment	3.07	27.90	1.85	1.73	18.18
Haul Trucks	0.08	3.11	0.07	0.05	4.94
Construction Workers	0.13	0.98	0.17	0.09	8.31
Fugitive Dust	-	-	6.51	0.99	-
Backfill and Grading	***1.91***	***26.03***	***4.19***	***1.50***	***8.95***
Off-Road Equipment	1.57	16.69	0.90	0.83	2.95
Haul Trucks	0.22	8.37	0.20	0.14	3.69
Construction Workers	0.13	0.98	0.17	0.09	2.31
Fugitive Dust	-	-	2.92	0.44	-
Habitat Enhancement					
Swale Grading	***1.24***	***12.36***	***66.32***	***14.31***	***1.55***
Off-Road Equipment	1.11	11.38	0.64	0.59	0.63
Haul Trucks	-	-	-	-	-
Construction Workers	0.13	0.98	0.17	0.09	0.92
Fugitive Dust	-	-	65.51	13.63	-
Deep Ripping and Soil Improvements	***2.14***	***23.70***	***33.99***	***7.88***	***3.41***
Off-Road Equipment	2.01	22.72	1.06	0.98	2.02
Haul Trucks	-	-	-	-	-
Construction Workers	0.13	0.98	0.17	0.09	1.39
Fugitive Dust	-	-	32.76	6.81	-
Seeding Native Grass Mix	***0.13***	***0.98***	***0.17***	***0.09***	***0.92***
Off-Road Equipment	-	-	-	-	-
Haul Trucks	-	-	-	-	-
Construction Workers	0.13	0.98	0.17	0.09	0.92
Fugitive Dust	-	-	-	-	-
Installation of Riparian Plantings	***0.13***	***0.98***	***0.17***	***0.09***	***2.31***
Off-Road Equipment	-	-	-	-	-
Haul Trucks	-	-	-	-	-
Construction Workers	0.13	0.98	0.17	0.09	2.31
Fugitive Dust	-	-	-	-	-
Irrigation	***0.50***	***3.59***	***0.27***	***0.27***	***0.00***
Off-Road Equipment	0.50	3.59	0.27	0.27	-
Haul Trucks	-	-	-	-	-
Construction Workers	-	-	-	-	-
Fugitive Dust	-	-	-	-	-
Maximum Daily Emissions	**3.28**	**78.85**	**197.48**	**31.08**	**81.53**

SAFCA 18A
On-Road Construction Emissions

							Daily Emissions (lbs/day)				Annual
Construction Phase	**Work Days**	**Total Trips**	**Daily Trips**	**Trip Distance**	**Total VMT**	**Daily VMT**	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**MT CO_2e**
Temporary Bike Trail Realignment											
Installation (10 cy AP)	3	2	2	30	60	20	0.01	0.41	0.01	0.01	0.11
Removal	1										
Culvert and Approach Channel Construction											
Excavation	4										
Export (1,000 cy)		200	50	30	6,000	1,500	0.81	31.10	0.74	0.50	10.98
Transport (2,000 cy)		400	100	20	8,000	2,000	1.08	41.47	0.99	0.67	14.64
Install Culvert and Rip-Rap Replacement	18	90	48	30	2,700	150	0.08	3.11	0.07	0.05	4.94
Backfill and Grading	5										
Riprap Import (650 tons)		59	12	30	1,778	356	0.19	7.37	0.18	0.12	3.25
Concrete Import (40 cy)		8	8	30	240	48	0.03	1.00	0.02	0.02	0.44
Habitat Enhancement											
Swale Grading	2										
Deep Ripping and Soil Improvements	3										
Seeding Native Grass Mix	2										
Installation of Riparian Plantings	5										
Irrigation	29 months										
Construction Workers	43	1720	40	30	51,600	1,200	0.13	0.98	0.17	0.09	19.86

Emission Factors (g/mi)

	ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Construction Workers	0.048	0.369	0.064	0.035	365.609
Haul Trucks (HHDT)	0.246	9.405	0.224	0.152	1738.127

SAFCA 18A
Fugitive Dust Emissions

Truck Loading Fugitive Dust Emission Factors

$EF_D = k \times (0.0032) \times ((U/5)^{1.3})/((M/2)^{1.4})$

Variable	Amount	Units	Source
EF (PM_{10})	0.103	lb/ton	CalEEMod Appendix A
EF ($PM_{2.5}$)	0.016	lb/ton	CalEEMod Appendix A
k (PM_{10})	0.35	factor	CalEEMod Appendix A
k ($PM_{2.5}$)	0.053	factor	CalEEMod Appendix A
U (mean wind speed)	7.83	miles/hr	CalEEMod Appendix A
M (moisture content)	12%	percent	CalEEMod Appendix A
Soil density	1.26	tons/cy	CalEEMod Appendix A

E (lbs) = EF (lb/ton) x TP (tons)

					Unmitigated		Mitigated	
	Work Days	Total Materials Moved (cy)	Total Materials Moved (tons)	Daily Materials Moved (tons/day)	Daily PM_{10} (lbs/day)	Daily $PM_{2.5}$ (lbs/day)	Daily PM_{10} (lbs/day)	Daily $PM_{2.5}$ (lbs/day)
Excavation								
Export	4	1,000	1,264	316	65.10	9.86	16.28	2.46
Transfer	4	2,000	2,528	632	130.21	19.72	32.55	4.93
Install Culvuert								
Concrete	18	450	569	32	6.51	0.99	1.63	0.25
Backfill and Grading								
Riprap	30	296	375	12	2.57	0.39	0.64	0.10
Concrete	30	40	51	2	0.35	0.05	0.09	0.01

Basic Construction Measure	0.54	percent reduction
Enhanced Mitigation	0.75	percent reduction

SAFCA 18A
Construction Fugitive PM Dust Emissions

Construction Parameter	Units	Project
Total Acres Disturbed	acres	6.86
Maximum Daily Acres Disturbed	acres/day	1.72
On-Site Cut/Fill	cubic yards	-
Off-Site Cut/Fill	cubic yards	-
Average Haul Distance	feet	0
Average Push Distance	feet	0

			Swale Grading		Deep Ripping	
Emission Factors	**Value**	**Units**	**Emissions PM_{10} (lbs/day)**	**Emissions $PM_{2.5}$ (lbs/day)**	**Emissions PM_{10} (lbs/day)**	**Emissions $PM_{2.5}$ (lbs/day)**
Default Emission Rate						
Average	10	lbs/ac-day				
Worst-Case	38.2	lbs/ac-day	65.51	13.63	32.76	6.81
		Total Unmitigated	65.51	13.63	32.76	6.81
		Full Mitigation	16.38	3.41	8.19	1.70

Final
Initial Study/Mitigated Negative Declaration

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Prepared for:

Sacramento Area Flood Control Agency

AECOM

April 1, 2015

Final
Initial Study/Mitigated Negative Declaration

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Prepared for:

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AECOM

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May 8, 2015

Sacramento
Area Flood
Control
Agency

Date: April 1, 2015
To: Interested Parties
From: Sacramento Area Flood Control Agency
Subject: Notice of Availability and Intent to Consider Adoption of a Mitigated Negative Declaration for the Site 18A Culvert Replacement and Fish Passage Enhancement Project

Enclosed for your review is an Initial Study/proposed Mitigated Negative Declaration (IS/MND) evaluating the potential environmental effects of the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project (proposed project), which is located in Sacramento, California, within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sacramento County. The Sacramento Area Flood Control Agency (SAFCA) has prepared this IS/MND in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.

SAFCA proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek. The proposed project would involve replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.

The IS/MND identifies potentially significant impacts related to the proposed project. All impacts are reduced to less-than-significant levels with implementation of mitigation measures identified in the Initial Study.

The IS/MND is being circulated for public review and comment for a 30-day period beginning on April 2, 2015 and ending on May 1, 2015. The IS/MND may be reviewed at SAFCA's Web site, www.safca.org/Protection/Environmental_Public_Review.html.

Please send written comments on the IS/MND to John A. Bassett, Sacramento Area Flood Control Agency, 1007 7th Street, 7th Floor, Sacramento, CA 95814, fax (916) 874-8289. Comments may also be sent via e-mail to bassettj@SacCounty.net. For e-mailed comments, please include the project title in the subject line, attach comments in MS Word format, and include the commenter's name and U.S. Postal Service mailing address. All written comments must be received by 5 p.m. on Friday, May 1, 2015.

The SAFCA Board of Directors intends to consider adoption of the Mitigated Negative Declaration at its regularly scheduled board meeting on May 21, 2015, after 3:00 p.m., to be held at the Sacramento County Board of Supervisors' Chambers located at 700 H Street, Sacramento, CA 95814. This meeting will be open to the public.

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MITIGATED NEGATIVE DECLARATION

Project: Site 18A Culvert Replacement and Fish Passage Enhancement Project

Lead Agency: Sacramento Area Flood Control Agency

PROJECT DESCRIPTION

The Sacramento Area Flood Control Agency (SAFCA) proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek. This would be accomplished by replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and by modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.

FINDINGS

An Initial Study (IS) has been prepared to assess the project's potential effects on the environment and the significance of those effects. Based on the IS, it has been determined that the proposed project would not have any significant adverse effects on the physical environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have no impacts on agricultural and forestry resources, minerals, population and housing, and public services.

2. The proposed project would have less-than-significant impacts on aesthetics, air quality, cultural resources, greenhouse gas emissions, land use and planning, recreation, and utilities and service systems.

3. The proposed project would have potentially significant impacts on biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation/traffic, but mitigation measures are proposed to avoid or reduce these effects to less-than-significant levels.

Following are the mitigation measures that would be implemented by SAFCA to avoid or minimize environmental impacts. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to a less-than-significant level.

Mitigation Measure BIO-1: Conduct Pre-construction Survey for Woolly Rose-Mallow and Implement Impact Avoidance and Minimization Measures.

SAFCA shall implement the following measures to avoid and minimize adverse impacts to woolly rose-mallow.

a) Before construction activities begin, a focused survey will be conducted by a qualified botanist for woolly rose-mallow shrubs that may be present in or within 50 feet of areas where ground disturbance would occur. To the extent feasible, depending on timing of project implementation, surveys will be conducted during the blooming period for this species (June–September).

b) If woolly rose-mallow is detected, areas where the species occurs will be fenced for complete avoidance during project implementation, to the extent feasible.

c) If woolly rose-mallow is present in areas where disturbance cannot be avoided, a qualified botanist will assess the feasibility of salvaging and transplanting individuals as part of the revegetation component of the project. If such actions are deemed feasible, they will be implemented under the direction of a qualified botanist and in coordination with California Department of Fish and Wildlife (CDFW).

Timing: Before construction activities begin and during revegetation.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure BIO-2: Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek.

SAFCA shall implement the following measures to avoid and minimize disturbance to special-status fish in NEMDC/Steelhead Creek.

a) No grading work within the existing floodway will occur during the designated flood season (i.e., November 1 to April 15), and work will not begin until evaluation of upstream conditions indicate that inundation of the construction area is unlikely to occur.

b) A worker awareness training program will be conducted for construction crews before the start of construction activities and as needed when new personnel begin work on the project. The program will include a brief overview of sensitive fisheries and aquatic resources (including riparian habitat to be preserved) on the project site, measures to minimize impacts on those resources, and conditions of relevant regulatory permits.

c) Any in-water construction activities (though not currently anticipated) will be conducted during months when special-status fish species/sensitive life stages are least likely to be present or less susceptible to disturbance (e.g., July 1 to October 31).

d) All riparian vegetation that is not specified to be impacted within the grading area will be identified and fenced using orange construction fencing or similar materials. Sensitive habitat information will be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.

Timing: Before, during, and as needed after construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure BIO-3: Conduct Pre-construction Surveys and Minimize Disturbance and Potential Loss of Active Nests of Special-Status Birds.

SAFCA shall implement the following measures to minimize disturbance and potential loss of active nests of special-status birds.

a) Focused surveys for Swainson's hawk and other nesting raptors will be conducted by a qualified biologist before on-site project activities begin. To the extent feasible, surveys for Swainson's hawk will follow guidelines provided in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). A minimum of one survey will be conducted no more than 14 days before beginning project activities that are conducted during the nesting season (March 15–August 31). Surveys for Swainson's hawk nests will include all accessible areas of suitable nesting habitat located within 0.25 mile of areas subject to project disturbance, and surveys for other raptors will include accessible suitable nesting habitat within 500 feet of project disturbance.

b) Surveys for Modesto song sparrow will include suitable habitat east of Northgate Boulevard and within up to 200 feet of areas of project disturbance, depending on the disturbance level. Surveys will be conducted within 7 days before on-site project activities begin in a given area during the migratory bird nesting season (March 1–August 31).

c) If active nests are found, appropriate buffers will be established and maintained around the nest sites to avoid nest failure resulting from project activities. The appropriate size and shape of the buffers will be determined by a qualified biologist and may vary depending on the species, nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity will begin within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure BIO-4: Avoid and Minimize Disturbance of Riparian Vegetation and Develop Restoration Plan to Compensate for Tree Loss.

SAFCA shall implement the following measures to avoid and minimize disturbance of riparian vegetation and trees.

a) If canopy and/or root pruning, cabling, or other corrective measures for preserved trees are necessary, such measures will be conducted as specified by a Certified Arborist and will conform to the pruning standards of the International Society of Arboriculture.

b) Ground disturbance activity, equipment, and vehicles will not encroach within 1 foot of the drip line of trees to be preserved, to the extent feasible. The dripline area will be protected with high visibility fencing or tape before any ground disturbance or movement or storage of heavy equipment and other vehicles occurs. All fencing/tape will be removed following construction and before revegetation plantings are installed.

c) Excavating within a distance of half the drip line beyond the drip line will be avoided whenever practicable. If necessary, any authorized fill or excavation within this area will be supervised by a Certified Arborist.

d) To prevent root tearing and mangling by heavy equipment, hand digging will be conducted around roots in the vicinity of major trees to be preserved before pruning of roots greater than 2-inch diameter. Severed roots larger than 2 inches in diameter will be pruned or trimmed and covered with earth as soon as possible.

e) If construction activities other than excavation are required within the dripline of preserved trees, a 6-inch layer of mulch or shredded wood material will be laid on top of the soil to protect the soil and roots (3/4-inch plywood may be used if mulch is not feasible). Mulch and/or plywood will be removed after construction is complete.

f) Removal of protected trees and other riparian vegetation (e.g., shrubs) will be compensated by planting appropriate species as part of the revegetation component of the project. Replacement plantings will be provided in accordance with City and County ordinances. Other riparian vegetation will be compensated at a 1:1 replacement ratio, based on the acreage removed. Revegetation efforts will be implemented as described in the restoration plan that has been prepared for the project. This will ensure adequate plantings of appropriate species are installed, maintained, and monitored to meet replacement requirements and compensate for removal of protected trees and other riparian vegetation.

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

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure GEO-1: Prepare and Implement a Grading and Erosion Control Plan.

a) Before earthmoving activities commence, SAFCA shall prepare and implement a grading and erosion control plan. The grading and erosion control plan will be prepared and implemented before on-site grading activities begin. The plan will be consistent with the State's National Pollutant Discharge Elimination System permit, and will include site-specific grading associated with culvert replacement and restoration activities.

b) The aforementioned plan will include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures; a description of measures designed to control dust and stabilize disturbed soils within the construction-site; and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment

control measures could include the use of berms, straw cover, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure HAZ-1: Prepare and Implement a Construction Fire Prevention Plan.

A fire prevention plan will be prepared and implemented by SAFCA or prepared by the construction contractor for review and approval by SAFCA in coordination with the appropriate emergency service and/or fire suppression agencies of the applicable local or State jurisdictions before the start of any construction activities. The plan will describe fire prevention and response methods, including fire precautions, requirements for spark arrestors on equipment, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. When heavy equipment is used for construction during the dry season, a water truck shall be maintained on the construction site. Materials and equipment required for implementation of the plan will be available on the construction site. Training will be provided to all construction personnel regarding fire safety, and all personnel will be made familiar with the contents of the plan before the start of construction activities.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure HYD-1: Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices.

a) During the development of improvement plans, SAFCA will consult with the Central Valley RWQCB and Sacramento County. The purpose of the consultation will be to acquire the regulatory approvals necessary to obtain a CWA Section 401 Water Quality Certification, and any other necessary waivers under the Porter-Cologne Water Quality Control Act.

b) SAFCA will also prepare and implement the appropriate storm water pollution prevention plan (SWPPP) or storm water management plan (SWMP) to prevent and control pollution and to minimize and control runoff and erosion. The SWPPP or SWMP will identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the best management practices (BMPs) that will be employed to control pollutant discharge. Construction techniques that will be identified and implemented to reduce the potential for runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP or SWMP will include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking and dust generation by construction

equipment. No disturbance of surfaces will occur between October 15 and April 15 without erosion control measures in place.

c) The SWPPP or SWMP will also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and will identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP or SWMP will also identify emergency procedures for responding to spills.

d) The BMPs presented in either document shall be clearly identified and maintained in good working condition, with sufficient backup stock on-site during all site work and construction activities. The construction contractor will retain a copy of the approved SWPPP or SWMP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the Central Valley RWQCB, if necessary.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure NOI-1: Implement Measures to Reduce Construction Noise Effects.

SAFCA shall require that its engineering design consultants and construction contractors implement the following measures to avoid and minimize construction traffic noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control.

To the extent feasible and practicable, the primary construction contractors shall employ noise-reducing construction practices such that noise from construction complies with applicable noise-level rules, regulations, and ordinances that apply to the work, including the noise standards established for non-transportation noise sources by the applicable agencies (City of Sacramento), depending on the jurisdictional location of the affected receptor(s). Measures that shall be used to limit noise shall include the following:

a) Prohibit use of materials and equipment deliveries prior to 7 a.m. and after 6 p.m., Monday through Saturday; and prior to 9 a.m. and after 6 p.m., on Sunday.

b) Establish and enforce construction site and haul road speed limits.

c) Route construction-related truck traffic along roadways that will cause the least disturbance to residents.

d) Use high-grade engine exhaust silencers and engine-casing sound insulation.

e) Restrict the use of bells, whistles, alarms, and horns to safety-warning purposes.

Timing: During construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure TRA-1: Repair Damaged Roadways and Bike Trails Following Construction.

Following completion of construction, SAFCA, its engineering design consultants, or its construction contractors will assess and repair any project-related damage to roadways and paved bicycle/pedestrian paths that were used during construction, including all project-related potholes, fractures, or other damages.

Timing: Following completion of the culvert replacement and swale modifications.

Responsibility: Sacramento Area Flood Control Agency.

ADOPTION OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION AND APPROVAL OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Certification by Those Responsible for Preparation of This Document. The Sacramento Area Flood Control Agency is responsible for the preparation of this Mitigated Negative Declaration and the incorporated Initial Study. I believe this document meets the requirements of the California Environmental Quality Act and provides an accurate description of the proposed project, and that the lead agency has the means and commitment to implement the project design measures that will assure the project does not have any significant, adverse effects on the physical environment. I recommend approval of this document.

_____ _____

Richard M. Johnson, Executive Director
Sacramento Area Flood Control Agency

Date

*(*To be signed upon completion of the public review process and preparation of a final project approval package including responses to comment, if any, on the environmental document and any necessary modifications to project design measures.)*

Approval of the Project by the Lead Agency: To meet Section 21082.1 of the California Environmental Quality Act, Sacramento Area Flood Control Agency has independently reviewed and analyzed the Initial Study and mitigated negative declaration for the proposed project and finds that the Initial Study and Mitigated Negative Declaration reflect the independent judgment of the Sacramento Area Flood Control Agency. The lead agency finds that the project design features will be implemented as stated in the Mitigated Negative Declaration.

I hereby attest that the Board of Directors of the Sacramento Area Flood Control Agency has approved this proposed project:

_____ _____

Richard M. Johnson, Executive Director
Sacramento Area Flood Control Agency

Date

INITIAL STUDY

Site 18A Culvert Replacement and Fish Passage Enhancement Project

1. Project Title	Site 18A Culvert Replacement and Fish Passage Enhancement Project
2. Lead Agency Name and Address	Sacramento Area Flood Control Agency 1007 7th Street, 7th Floor Sacramento, CA 95814
3. Contact Person and Phone Number	John A. Bassett Sacramento Area Flood Control Agency 1007 7th Street. 7th Floor Sacramento, CA 95814 Fax: (916) 874-8289 E-mail: bassettj@SacCounty.net
4. Project Location	The project is located south of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, north of Del Paso Boulevard and east of Northgate Boulevard, approximately 1/4 mile east of Camp Pollock within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sacramento County, California
5. Project Sponsor's Name	Sacramento Area Flood Control Agency
6. General Plan Designation	Recreation/Waterway
7. Zoning	American River Parkway – Floodplain Zone
8. Description of Project	SAFCA proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to NEMDC/Steelhead Creek. This would be accomplished by replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and by modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.
9. Surrounding Land Uses and Setting	Industrial, residential, and recreation. See "Environmental Setting" discussion under each issue area in Chapter 3, "Environmental Checklist."
10. Other Public Agencies Whose Approval May Be Required	U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service, California Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, Central Valley Flood Protection Board, Sacramento Metropolitan Air Quality Management District, and Sacramento County.

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ACRONYMS AND OTHER ABBREVIATIONS

AB	Assembly Bill
AQAP	air quality attainment plan
ARB	California Air Resources Board
ARP-F	American River Parkway-Floodplain
Basin Plan	*Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin*
Bay-Delta	San Francisco Bay/Sacramento–San Joaquin Delta
bgs	below ground surface
BMP	best management practice
CAA	Federal Clean Air Act
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CRPR	California Rare Plant Rank
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
cy	cubic yards
dB	decibels
dBA	A-weighted decibels
dbh	diameter at breast height
DOC	California Department of Conservation
DOF	California Department of Finance
DPS	distinct population segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
ESU	evolutionarily significant unit
FEIR	Final Environmental Impact Report
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHGs	greenhouse gases
HCP	Habitat Conservation Plan
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
IS	Initial Study
ITE	Institute of Transportation Engineers

Ksat	saturated hydraulic conductivity
lbs/day	pounds per day
lbs/acre	pounds per acre
LDL	Larson Davis Laboratories
L_{dn}	day-night average level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum instantaneous sound level
LOS	Level of Service
LRA	Local Responsibility Areas
LUST	leaking underground storage tank
M	magnitude
mm/yr	millimeters per year
mph	miles per hour
MRZ	Mineral Resource Zone
MT CO_2e	metric tons carbon dioxide equivalent
N/A	not available
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NALP	North Area Local Project
NCIC	North Central Information Center
NEMDC	Natomas East Main Drainage Canal
NLIP	Natomas Levee Improvement Program
NMFS	National Marine Fisheries Service
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OEHHA	Office of Environmental Health Hazard Assessment
PCC	Portland cement concrete
PCE	passenger car equivalent
PGCC	Pleasant Grove Creek Canal
PG&E	Pacific Gas and Electric
PM	particulate matter
$PM_{2.5}$	particulate matter equal to or less than 2.5 micrometers in diameter
PM_{10}	particulate matter equal to or less than 10 micrometers in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPV	peak particle velocity
PRC	California Public Resources Code
proposed project	Site 18A Culvert Replacement and Fish Passage Enhancement Project
RD	Reclamation District
RMS	root-mean-square
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SACRT	Sacramento Regional Transit
SAFCA	Sacramento Area Flood Control Agency
SEIR	supplemental environmental impact report
SEL	sound exposure level
SFD	Sacramento Fire Department
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District

SPD	Sacramento Police Department
SRA	shaded riverine aquatic
SVAB	Sacramento Valley Air Basin
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
WAPA	Western Area Power Administration

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1 INTRODUCTION

The Sacramento Area Flood Control Agency (SAFCA) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) to address the potentially significant environmental impacts of the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project (proposed project) in Sacramento, California. SAFCA is the lead agency under CEQA.

This document includes:

- an IS (Initial Study) to satisfy CEQA requirements,
- a MND to satisfy CEQA requirements, and
- the Notice of Availability and intent to adopt an IS/MND for the proposed project.

After the required public review of this document is complete, the SAFCA Board of Directors will consider adopting the proposed MND and a Mitigation Monitoring and Reporting Program, and will decide whether to proceed with the proposed project.

1.1 PURPOSE OF THE INITIAL STUDY

This document is an IS/MND prepared in accordance with CEQA (California Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations [CCR]). The purpose of this IS is to (1) determine whether proposed project implementation would result in potentially significant or significant impacts on the physical environment; and (2) incorporate mitigation measures into the proposed project design, as necessary, to eliminate the proposed project's potentially significant or significant project impacts or reduce them to a less- than-significant level. An MND is prepared if the IS identified potentially significant impacts, but: (1) Revisions in the proposed project plans or proposals mitigate the impacts to a point where clearly no significant impacts would occur; and (2) there is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a potentially significant or significant impact on the physical environment.

An IS presents environmental analysis and substantial evidence in support of its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. An IS is neither intended nor required to include the level of detail provided in an Environmental Impact Report (EIR).

CEQA requires that all State and local government agencies consider the potentially significant and significant environmental impacts of projects they propose to carry out or over which they have discretionary authority, before implementing or approving those projects. The public agency that has the principal responsibility for carrying out or approving a proposed project is the lead agency for CEQA compliance (State CEQA Guidelines, CCR Section 15367). SAFCA has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this IS/MND.

If there is substantial evidence (such as the findings of an IS) that a proposed project, either individually or cumulatively, may have a significant or potentially significant impact on the physical environment, the lead

agency must prepare an EIR (State CEQA Guidelines, CCR Section 15064[a]). If the IS concludes that impacts would be less than significant, or that mitigation measures committed to by the applicant (SAFCA) would clearly reduce impacts to a less-than-significant level, a Negative Declaration or MND can be prepared.

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

1.2 SUMMARY OF FINDINGS

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it was determined that:

The proposed project would result in no impacts on the following issue areas:

- Agricultural and Forestry ResourcesMinerals
- Population and Housing
- Public Services

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

- Aesthetics
- Air Quality
- Cultural Resources
- Greenhouse Gas Emissions
- Land Use and Planning
- Recreation
- Utilities and Service Systems

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

- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation/Traffic

1.3 DOCUMENT ORGANIZATION

This document is divided into the following sections:

Notice of Availability and Intent to Consider Adoption of a Proposed MND. The Notice of Availability and Intent to Consider Adoption of a Proposed MND provides notice to responsible and trustee agencies, interested parties, and organizations of the availability of this IS and of SAFCA's intent to consider adopting an MND for the proposed project.

MND. The MND, which precedes the presentation of the IS analysis in this document, summarizes the environmental conclusions and identifies mitigation measures that would be implemented in conjunction with the proposed project.

Chapter 1, "Introduction." This chapter briefly summarizes the proposed project and describes the purpose of the IS/MND, summarizes findings, and describes the organization of this IS/MND.

Chapter 2, "Project Description." This chapter describes the project location and background, project need and objectives, project characteristics, construction activities, project operations, and discretionary actions and approvals that may be required.

Chapter 3, "Environmental Checklist." This chapter presents an analysis of environmental issues identified in the CEQA environmental checklist and determines whether project implementation would result in a beneficial impact, no impact, less-than-significant impact, less-than-significant impact with mitigation incorporated, potentially significant impact, or significant impact on the physical environment in each issue area. Should any impacts be determined to be potentially significant or significant, an EIR would be required. For this proposed project, however, mitigation measures have been incorporated as needed to reduce all potentially significant and significant impacts to a less-than-significant level.

Chapter 4, "References Cited." This chapter lists the references used in preparation of this IS/MND.

Chapter 5, "Report Preparers." This chapter identifies report preparers who contributed to the preparation of this document.

Chapter 6, "IS/MND Distribution." This chapter lists the people and agencies to whom this IS/MND will be distributed.

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2 PROJECT DESCRIPTION

This chapter describes the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project (proposed project). The project location and background are described along with project need and objectives, project characteristics, construction activities, project operations, and discretionary actions and approvals that may be required.

2.1 PROJECT LOCATION

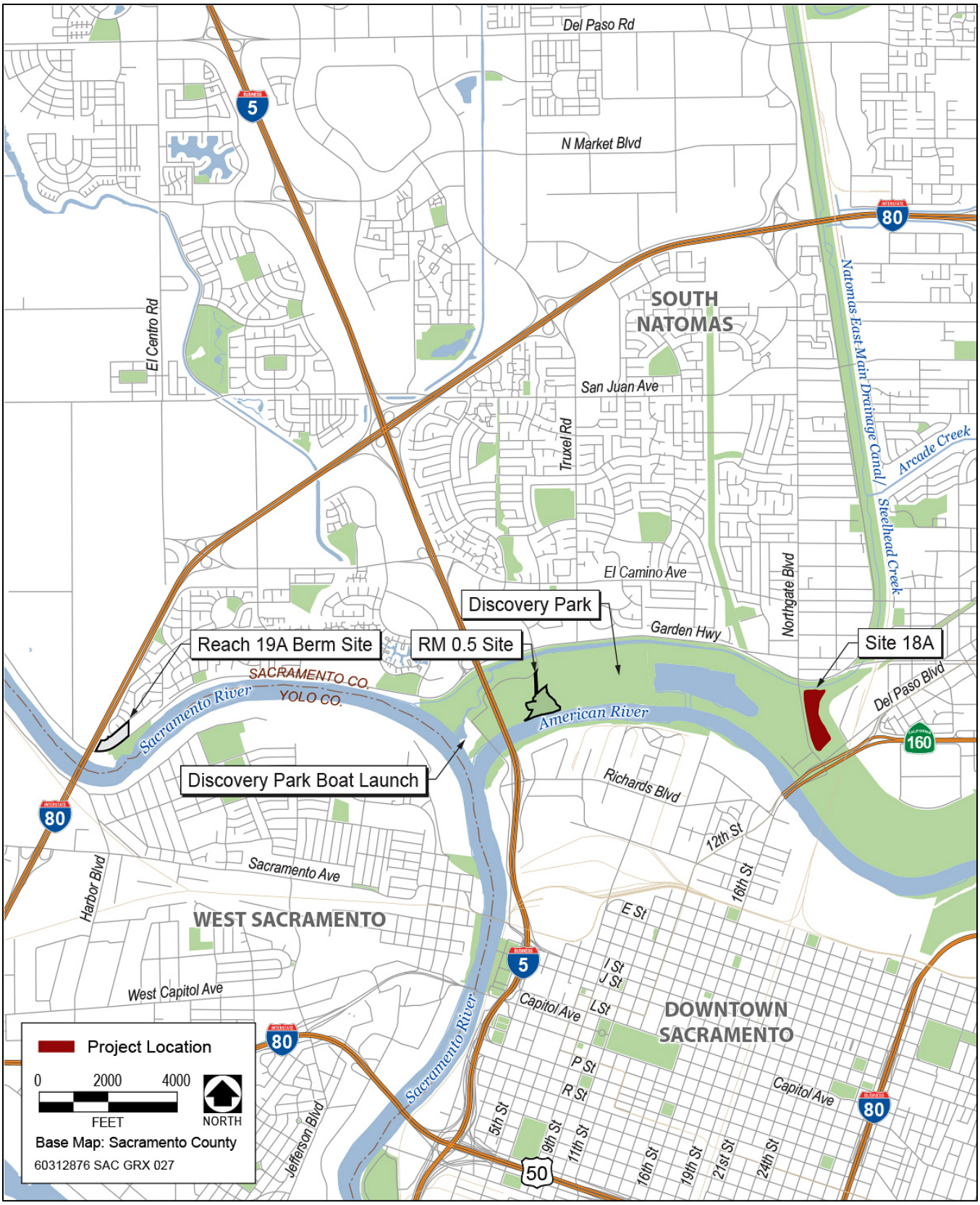
Site 18A is a seasonally flooded wetland and riparian habitat area that encompasses approximately 17 acres in the American River Parkway upstream from Discovery Park, immediately south of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek and directly east of Northgate Boulevard (**Exhibit 2-1, Exhibit 2-2**). NEMDC/ Steelhead Creek flows into the Sacramento River upstream of the American River confluence and the Discovery Park boat launch facility. The American River Parkway bike trail extends along the top of an earthen berm that surrounds and defines Site 18A.

2.2 PROJECT BACKGROUND AND NEED

Site 18A was used as a borrow site in 1996 to generate approximately 230,000 cubic yards (cy) of earthen fill material for the Sacramento Area Flood Control Agency's (SAFCA's) North Area Local Project (NALP) levee improvements. Following the 1996 excavation, the area was graded and planted by SAFCA to support a floodplain riparian and seasonal wetland habitat.

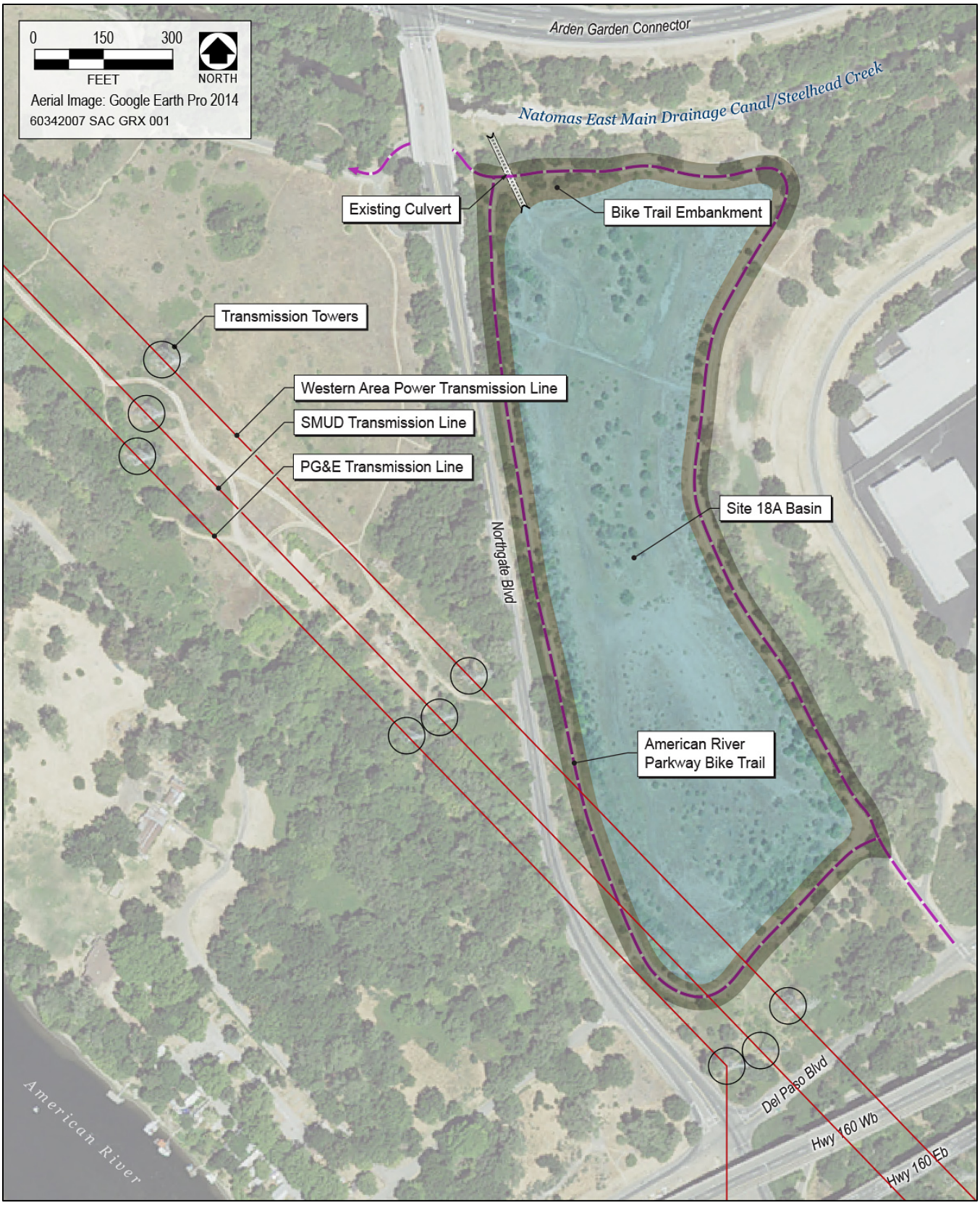
Water from NEMDC/Steelhead Creek flows passively into the Site 18A seasonal wetland through a relatively small (30-inch diameter) culvert located at the northwest corner of the basin. The culvert passes under the heavily used, paved American River Parkway bike trail and extends approximately170 feet from the basin to the left (south) bank of NEMDC/Steelhead Creek. During moderate to high flood stages in the Sacramento and Lower American Rivers, NEMDC/Steelhead Creek and the American River can backup and overflow into Site 18A and surrounding low areas, both through the culvert and by overtopping the low berm/bike trail embankment that surrounds the site (**Exhibit 2-2**). The floodplain habitat becomes most accessible to juvenile salmonids during these higher stage flood events when overtopping occurs. As the floodwaters recede and the basin drains, the invert elevation of the culvert and depressions within the interior swales cause shallow ponding to occur within the basin which can result in entrapment of juvenile salmonids and other fish. Because the outflow through the culvert is limited, it does not provide adequate attraction flows for fish to follow the receding flow path back to NEMDC/Steelhead Creek. As the floodwaters recede, juvenile Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss*), and other fish are potentially subject to stranding and are vulnerable to piscine, mammalian, and avian predation in the ponded areas in Site 18A.

During February and March 1999, Site 18A became flooded as described above due to a series of heavy storm events. When the water surface elevation subsequently declined, an opportunity was afforded to assess the extent of potential fish stranding, piscine predation, and habitat/flow conditions that may be required to trigger movement of juvenile salmonids from the ponded area (Jones and Stokes 1999). Beach seining resulted in the capture of over 3,000 predominantly fall-run juvenile Chinook salmon, however, 262 fish were positively identified as Federally listed winter-run (majority) and spring-run Chinook salmon. From mark-recapture sampling, over 50,000 juvenile Chinook salmon (all races) were estimated to have entered the basin and were temporarily stranded during this event.



Source: Adapted by AECOM in 2015

Exhibit 2-1. Site 18A Culvert Replacement and Fish Passage Enhancement Project Location



Source: Adapted by AECOM in 2015

Exhibit 2-2. Site 18A Culvert Replacement and Fish Passage Enhancement Project Site Map

Hoop net sampling of the outfall (culvert) during the draining of the basin indicated that movement of larger-sized (i.e., winter-run and spring-run) juvenile salmonids had commenced, but the fall-run juvenile salmonids appeared to prefer to remain in the rearing habitat provided within Site 18A rather than moving through the culvert, presumably because they had not undergone smoltification. The fall-run juveniles were likely rearing upstream in suitable habitat and were flushed downstream during high flows, rather than actively out-migrating. Subsequent regrading of the basin swales by SAFCA in late 1999 to allow for more complete drainage as floodwaters recede improved, but did not completely eliminate, the potential fish stranding and predation problem.

To further reduce the potential for fish stranding at Site 18A, SAFCA proposes to improve the exchange of flows into and out of the Site 18A seasonal wetland complex. SAFCA also proposes to modify the gradient of the interior swales and increase the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain to further reduce predation by piscivorous birds and increase rearing and feeding habitat for juvenile salmonids.

2.3 PROJECT OBJECTIVES

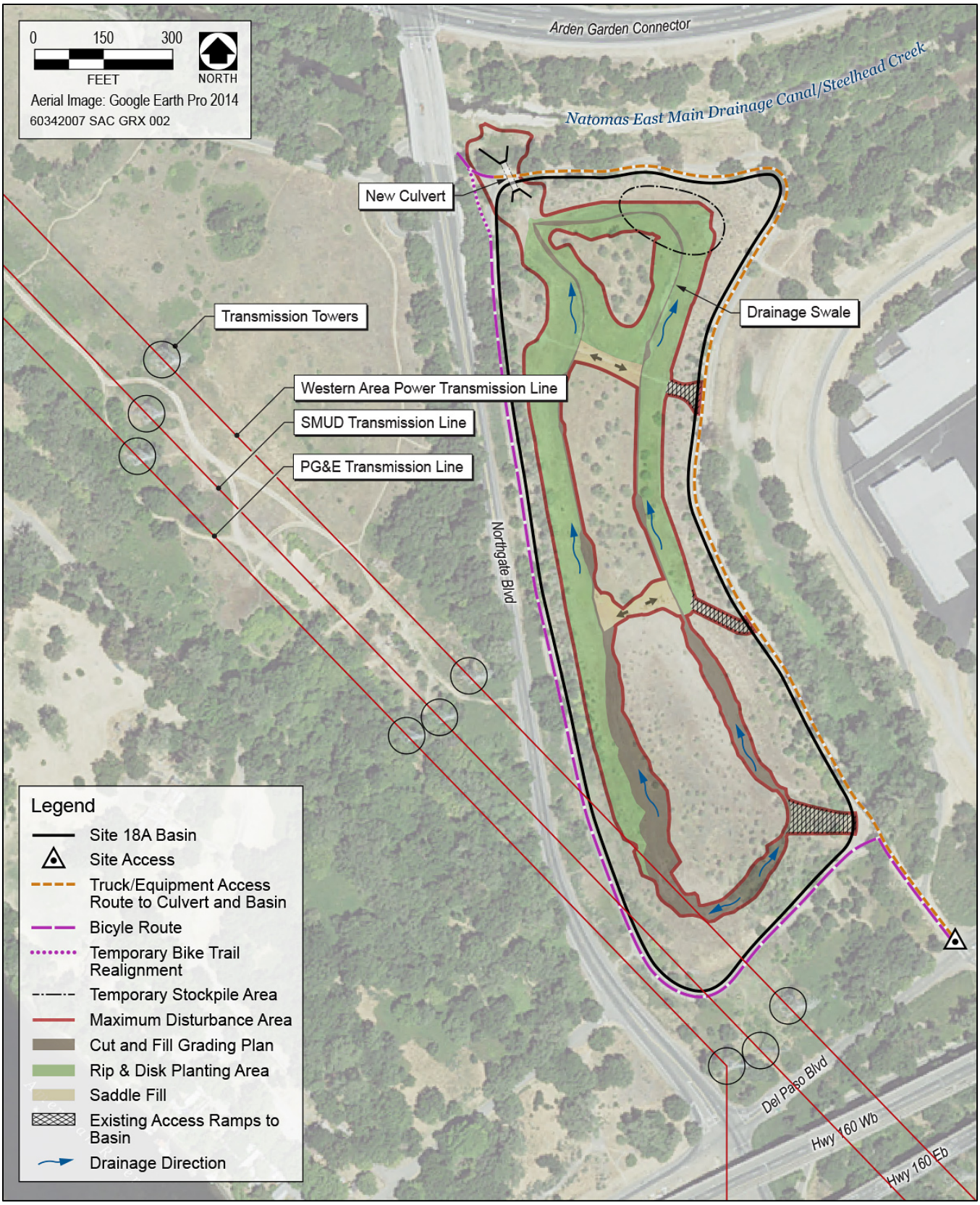
The primary objectives of SAFCA's proposed project are to:

- reduce the potential for fish stranding by improving drainage, flow path, and connectivity between Site 18A and NEMDC/Steelhead Creek;
- improve accessibility to floodplain rearing habitat; and
- enhance ecosystem function through improving habitat quality and diversity, including improvements to soil conditions to boost growth potential of riparian and seasonal wetland vegetation.

2.4 PROPOSED PROJECT

The proposed project would include replacing the existing culvert with a shortened and much wider and taller arched culvert; regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A; and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities (**Exhibit 2-3**). The overall culvert replacement and regrading of portions of the swale system would be designed to improve the frequency/periodicity, attraction, and exchange of flows into and out of the Site 18A seasonal wetland complex, thereby reducing the potential for fish stranding and facilitating juvenile salmonid outmigration. Habitat enhancement activities would focus on improving soil conditions to support revegetation of disturbed areas, and improving existing wetland and riparian habitat quality by increasing seasonally submerged vegetation, overhead cover, and fish rearing and feeding habitat. Improved floodplain-creek connectivity and enhancement of vegetative cover would likely improve fish rearing habitat, and reduce fish stranding and predation by piscivorous birds.

- **Culvert Replacement:** A new, larger cross-sectional area, steel plate or concrete arch culvert (approximately 10- to 12-feet wide opening) would connect the Site 18A flood basin more openly to NEMDC/Steelhead Creek, and allow for more positive drainage and fish outmigration from the site. The existing culvert would be removed and the new arched culvert would be installed through the bike trail berm in the northwest corner of Site 18A.



Source: Adapted by AECOM in 2015

Exhibit 2-3. Construction Plan View

- **Swale Modifications:** Fish rearing habitat would be enhanced and fish stranding reduced by improving connectivity between NEMDC/Steelhead Creek and the Site 18A floodplain habitats. Existing interior drainage swales would be graded to provide more relief in the micro topography to further enhance outflow gradients between the creek and the basin's vegetated floodplain habitat.

- **Habitat Enhancement:** To improve rearing habitat and refugia in the basin floodplain, additional seasonal wetland plants and riparian scrub would be planted within the Site 18A basin. Enhancement efforts would provide cover and increase habitat variability. Growth rates and canopy cover of existing and proposed new riparian vegetation would be increased by deep-ripping the underlying root-restricting layer (Riverbank Formation) that has suppressed growth rates of trees planted since 1996. Denser, higher quality floodplain habitat and cover for fish would be created at the northwest corner of the Site 18A basin to concentrate and attract fish to the culvert drainage exit.

2.5 PROPOSED CONSTRUCTION ACTIVITIES

2.5.1 SITE ACCESS

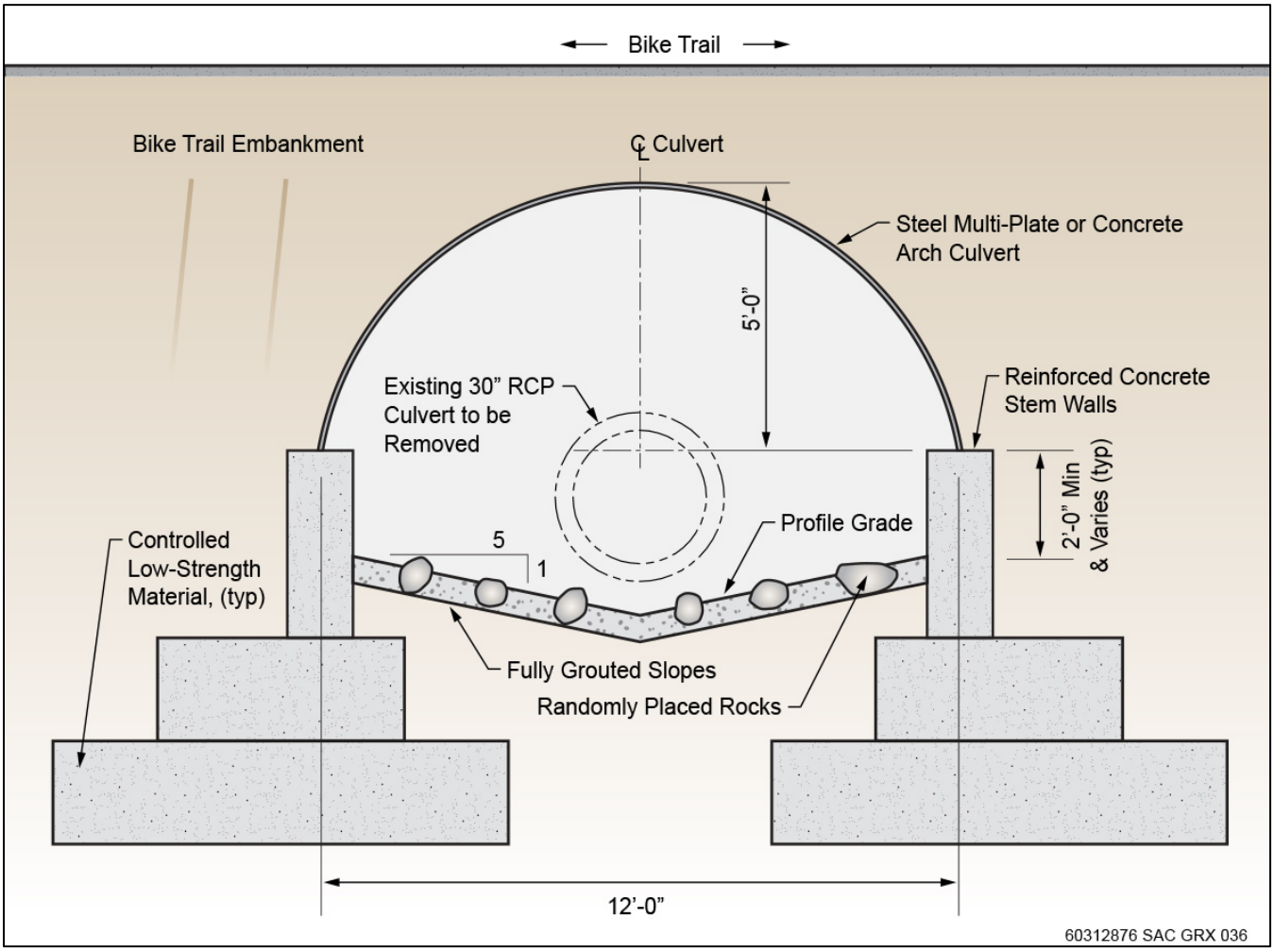
To replace the existing culvert, which crosses under the American River Parkway bike trail near the northwest corner of the Site 18A basin, the bike trail west of the culvert would be temporary realigned to safely route bicyclists and other trail users around the west and south sides of the basin to the section of bike trail at the southeast corner of the site that leads to the bike trail crossing at Del Paso Boulevard. This would require some slight grading and the import of approximately 10 cy of asphalt concrete to install a temporary 8-foot-wide by approximately 130-feet-long trail through an existing gravel and dirt area adjacent to the bike trail intersection at the northwest corner of the Site 18A basin. The temporary trail would be constructed using an asphalt paver, front-end loader, and smooth drum roller. Once the new culvert is in place and construction of the proposed project completed, the temporary asphalt concrete trail would be removed and the material hauled offsite to a local solid waste disposal or recycling facility. The section of paved bike trail that crosses over the culvert would also be reconstructed to pre-project conditions. This reconstruction activity would take approximately two days and entail laying aggregate base rock, an asphalt surface, and decomposed granite shoulders using an asphalt paver, front-end loader and smooth drum roller.

The bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would be closed to the public during construction. Haul trucks would use this portion of the bike trail to access the Site 18A work areas and equipment may be staged in these areas as well. However, the approximately 280-feet-long portion of bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open to the public and also used by haul trucks entering and exiting Site 18A during construction. In order to protect the public during the off-haul and delivery operations, the Contractor would be required to place warning signage and deploy flaggers to intermittently hold public traffic while trucks are traversing the joint-use portion of the bike trail.

2.5.2 CULVERT REPLACEMENT AND APPROACH CHANNELS

An open excavation approximately 40-50 feet wide at the top and narrowing to fit a footing approximately 25 feet wide at the bottom would be needed to construct the new arched culvert. This excavation would extend north and south of the existing culvert to connect NEMDC/Steelhead Creek to the interior of the basin. The existing trees and shrubs within the footprint of the excavation would be removed as part of the project's clearing and grubbing

activities. The existing 170-foot culvert would be removed and replaced with a steel plate or concrete arch culvert that would be between 70 and 110 feet long, approximately 10 to 12 feet wide and 7 feet in height. **Exhibit 2-4** shows a cross section of a typical arched culvert design. The new culvert would sit on cast-in-place concrete footings on each side. The existing culvert's invert elevation is approximately 10.9 feet at the basin side, and the new culvert's invert elevation would be approximately 10.0 feet at the basin side. The invert elevation on the creek side is approximately 9.7 feet, and the new culvert's invert elevation would be approximately 9.0 feet at the creek side. The bottom of the culvert would consist of grouted rip-rap, with a flow line shaped at a gradient of 0.5 percent to the new elevation to discourage ponding of water. Concrete headwalls and wingwalls would be constructed at each end of the culvert. The culvert foundations would consist of approximately 240 cy of controlled low strength material (a sand-cement mixture). The culvert footings would consist of approximately 110 cy of cast-in-place concrete. The culvert headwalls and retaining walls would consist of approximately 100 cy of cast-in-place concrete. Assuming a capacity of 10 cy per load, approximately 45 round trip truck trips would be needed to deliver concrete to the site. The deliveries of concrete would be made at various stages of construction as construction of the foundations and forming of the footings and headwalls is completed. It is anticipated that no more than 24 deliveries would be made on any given day.



Source: Adapted by AECOM in 2015

Exhibit 2-4. Typical Arched Culvert Cross Section

The channels approaching the culvert from the north (outlet channel) and south (inlet channel) would be about 10 feet wide at the bottom and have three horizontal to one vertical (3H:1V) side slopes. The top width of the channel would vary as the side slopes intersect the existing ground along the alignment of the channels.

An estimated 3,000 cy of soil would be excavated to construct the new culvert and the inlet and outlet channels. An excavator would be used to excavate the culvert and associated channels, and load the excavated material onto haul trucks. Approximately 1/3 (i.e., 1,000 cy) of this material would be replaced as backfill on the sides and top of the culvert. The backfill soil would be temporarily stockpiled on-site in a northeast portion of the on-site drainage swales (**Exhibit 2-3**). It is anticipated that three 10-wheel (10 cy capacity) trucks would be needed to haul the material to the on-site stockpile over a 3-day period. A small (D4 or similar) bulldozer would be used to backfill the culvert with the earthen material. Initial stages of soil compaction for the material would be made using jumping-jack style compactors. As the backfill progressed, two hand-controlled sheeps-foot compactors, followed by a driven sheeps-foot roller would be used.

The remaining approximately 2,000 cy of soil would be removed from the site and hauled using 10-wheel dump trucks along Garden Highway to the Natomas Levee Improvement Program (NLIP) being implemented by SAFCA at the Sacramento River East Levee Reach 19A Berm Site, located just east of the Interstate 80 crossing over the Sacramento River, approximately 5 miles west of Site 18A (**Exhibit 2-1**). Assuming use of eight dump trucks with a 10-cy capacity, approximately 150 to 200 round-trip truck haul trips would be needed to transport the excess soil material from Site 18A to the Reach 19A Berm Site over a 4-day period. The transported soil material would be placed along the landside toe of the Reach 19A levee as part of a constructed seepage berm. The site-specific impacts of soil placement at the Reach 19A Berm Site have been addressed in the Draft Environmental Impact Statement (EIS)/EIR on the American River Watershed Common Features Project/Natomas Post-authorization Change Report/Natomas Levee Improvement Program, Phase 4b Landside Improvements Project. The Draft EIS/EIR was published by USACE and SAFCA in 2010. The NLIP Phase 4b Landside Levee Improvements Project Final EIS was issued by USACE in October 2010 and SAFCA certified the Final EIR (FEIR) in November 2010. The NLIP Phase 4b FEIR document also addressed significant hauling and lane closures on Garden Highway for the transport of soil material to the Reach 19A Berm Site.

Approximately 60,000 cy of soil would be hauled along Garden Highway from Natomas Park Drive to the Reach 19A Berm Site as part of the American River Mile 0.5/Reach 19A projects. Haul trips from the River Mile 0.5 Site (**Exhibit 2-1**) to the Reach 19A Site were addressed in the Draft Supplemental EIR (SEIR) No. 2 for the NLIP Landside Improvements Project (SAFCA 2012). The Final SEIR was certified by SAFCA on October 18, 2012. The proposed project would potentially provide an additional 2,000 cy of soil to the Reach 19A Berm Site. Soil haulage from the American River Mile 0.5 site to the Reach 19A Berm Site was analyzed in SEIR No. 2. Therefore this IS/MND addresses the additional distance that soil would be hauled from the project site at Del Paso Boulevard to Northgate Boulevard, and along Garden Highway to the intersection with Natomas Park Drive. The total yardage is an estimate based on grading plans and actual yardage may be more or less.

Following excavation of the new culvert and approach channels, approximately 650 tons of imported rip-rap would be used to line the culvert invert (approximately 3 feet deep) and the approach channels. Approximately 40 cy of concrete would be used for grouting the rip-rap within the culvert. This would require the use of a concrete truck and pump rig. The rip-rap on the culvert approach channels would not be grouted but would be backfilled with soil to allow planting of grass.

A water truck, which would obtain water from a nearby City of Sacramento fire hydrant, would provide dust control during excavation and grading operations and would provide water for moisture conditioning the backfill soils.

2.5.3 CULVERT MAINTENANCE

Debris that may accumulate within the new culvert would be cleared every 6 months or as needed by SAFCA or its contractors or partners. During routine maintenance, any needed repairs, vandalism and/or graffiti observed on the headwalls and wing walls would be reported and the appropriate actions would be taken. In addition, issues associated with beaver activity or flood debris that could clog the culvert would be noted and the area would be targeted for the removal of downed vegetation if and as necessary.

2.5.4 SWALE MODIFICATIONS

To reduce fish stranding and improve rearing habitat, inflow and outflow would be enhanced through grading so the existing interior drainage swale gradients would match the new culvert's invert elevation (**Exhibit 2-3**). Following replacement of the culvert and removal of the temporary stockpile of native soil material, the existing floodplain swales would be graded to an increased depth of 6 inches to 1 foot. Swales would be approximately 2 feet wide at the bottom with 3H:1V side slopes. Swales around the two islands in the north portion of the site, including the portion of the swale that would harbor the temporary stockpile, and the swales along the interior southern perimeter of the basin would be graded and/or filled. Spoils and other fill generated from excavation activities would be placed to ensure positive drainage to the culvert and eliminate shallow ponding. This would improve the gradient and ultimately the connectivity of water flow between NEMDC/Steelhead Creek and Site 18A.

During the swale modifications phase, the root-restricting soil layer underlying areas adjacent to the swales would be deep-ripped, disked, and the large clods pulverized to 1- to 2-inch clods to facilitate plant growth by improving rooting depth and infiltration. Soils would be prepared for revegetation by incorporating appropriate amendments (such as gypsum) and organic compost to a depth of 12 to 18 inches. The incorporation of compost and the appropriate amendments would improve soil conditions and benefit plants through improved water holding capacity, soil structure, and aeration. The appropriate type and volume of amendments would be identified through laboratory analysis of soil samples. The areas under the flow line of the swales would be left un-ripped and un-amended in order to avoid future differential settling that could lead to the reemergence of micro ponding areas.

2.5.5 HABITAT REVEGETATION AND ENHANCEMENT

Planting and seeding would commence after completion of the culvert replacement, soil preparation, finish grading of the modified swales, and placement of rock within the new culvert bottom and approach channels.

Areas disturbed during the culvert construction and swale modification would be seeded with an erosion control grass seed mix appropriate for the variable soil moisture regime and inundation frequency of the site. Seeding for erosion control of disturbed areas and channel habitat would typically occur from late October through December, just before the first wetting rain. All areas with bare soil surfaces within swales and riparian and upland habitat areas would be seeded one growing season before plants are to be installed to stabilize the soil and allow time for an annual cycle of weed management. Seed of native grasses would be applied at a rate of approximately

16.5 lbs/acre using a combination of native grass seed drills (e.g., Truax Grass Drill) and broadcast seeding. **Table 2-1** provides an example of the potential composition and relative proportion of species that may be used in the grass seed mix.

Table 2-1. Example Grass Seed Mix

Scientific Name	Common Name	Pure Live Seed (lbs./acre)
Agrostis exarata	bentgrass	0.1
Deschampsia cespitosa	tufted hairgrass	0.2
Elymus glaucus[1]	blue wildrye	3.0
Elymus trachycaulus[2]	slender wheatgrass	3.0
Hordeum brachyantherum	meadow barley	4.0
Leymus triticoides[3]	creeping wildrye	4.0
Muhlenbergia rigens	deergrass	0.2
Sporobolus airoides	alkali sacaton	2.0
Total for mix		16.5

Notes:
[1] Flood tolerant ecotype.
[2] Mayus ecotype from the Sacramento Valley.
[3] Flood tolerant 'Rio' or 'Yolo' ecotypes.
Source: Data compiled by AECOM in 2015

Riparian and willow scrub vegetation would be enhanced through planting a combination of nursery-grown container stock, oak acorns, and live cuttings of willow from harvest sites in the project vicinity. These plantings would be installed along the edge of the swales during the fall following completion of grading and 1 year after seeding the work area. Dense (roughly 200 plants per acre), high quality floodplain habitat and cover for fish would be concentrated within and adjacent to the swales in the northwest corner of the Site 18A basin. Where thickets of willow scrub are desired to provide dense refugia and cover for fish, cuttings would be planted 2 to 3 feet on center in parallel rows. In other locations, taller species of trees would be planted 15 to 20 feet on center, and smaller species of trees and shrubs would be planted 5 to 15 feet on center. An example palette of floodplain adapted species that have potential to be planted along the edge of the swales is provided in **Table 2-2**.

2.5.6 HABITAT ESTABLISHMENT AND MAINTENANCE

Habitat establishment is anticipated to occur within 3 to 5 years. However, supportive maintenance activities would be implemented for a minimum of 5 years to ensure successful establishment of vegetation. Maintenance activities needed to support revegetation of the disturbed areas and establishment of the new plantings within and adjacent to the swales would include temporary plant irrigation, weed control (mowing, hand weeding, and herbicide application), debris removal, mulching, protection from beaver/deer damage (fence/cage surrounding some plants), and corrective measures such as replanting and reseeding. Maintenance needs would be evaluated during the establishment efforts and may vary in timing or frequency in accordance with conditions on the ground. The intent of habitat establishment and maintenance would be to promote healthy, vigorous, and self-sustaining habitat that would thrive without supplemental intervention after 5 years.

Table 2-2. Example Plant Palette for the Edge of Swales	
Scientific Name	Common Name
Acer negundo	boxelder
Baccharis salicifolia	mulefat
Fraxinus latifolia	Oregon ash
Juglans nigra	Black walnut
Platanus racemosa	California sycamore
Populus fremontii	Fremont cottonwood
Quercus lobata	Valley oak
Rubus ursinus	California blackberry
Salix exigua spp. hindsiana	sandbar willow
Salix gooddingii	black willow
Salix lasiolepis	Arroyo willow
Vitis californica	California wild grape
Source: Data compiled by AECOM in 2015	

Irrigation during plant establishment would be supported either by a temporary irrigation system that would pump water from NEMDC/Steelhead Creek or by water truck deliveries. Water would be applied at a rate sufficient to wet the soil and saturate the root zone of installed plants without causing erosion, damage to plants, or excessive runoff. The watering regime would be designed to establish healthy and vigorous plants and would include a "weaning off" period to prevent plants from becoming irrigation-dependent. If a temporary irrigation system is employed, it would be checked monthly, or as needed, during the dry season (typically from April through September) to ensure proper functioning and to identify leaks and implement necessary repairs. An example 5-year irrigation schedule is provided in **Table 2-3**.

Table 2-3. Example Irrigation Schedule[1] for Trees and Shrubs

Year	Application Period	Frequency	Duration
1	April – Oct (7 months)	8 gallons every 2-3 days	8 hours
2	April – Oct (7 months)	8 gallons every 3-5 days	8 hours
3	April – Sep (6 months)	8 gallons every 10-14 days	8 hours
4	May – Sep (5 months)	10 gallons every 28 days	8 hours
5	June – Sept (4 months)	Irrigate only if severe water stress occurs; Monitor	8 hours / TBD

Note:
[1] Actual irrigation schedule would depend on climate conditions and temporal variations in weather patterns.
Source: Data compiled by AECOM in 2014

Weed control activities would be performed typically 3 times during the growing season for the first 3 to 5 years to reduce invasive weed establishment. This activity may involve hand weeding, use of mechanical equipment (e.g., mowing), and herbicide application to support establishment of native and/or desirable installed vegetation and reduce or suppress nonnative and/or undesirable vegetation (i.e., noxious weeds). Herbicides would be

applied according to the label, in accordance with applicable Federal and State laws, including those pertaining to herbicide application in or near wetlands.

Debris removal would occur during weed control operations or as scheduled by SAFCA. Debris blown into or placed in the basin, such as any human-made debris, would be removed as necessary. Debris removal would be performed using hand-clearing or low-impact methods and the debris would be hauled off-site in accordance with State and local regulations. Natural vegetation debris and woody materials would not be removed unless necessary to maintain proper drainage within the swales and prevent blockage of the culvert, or ensure public safety.

Mulch applications around plantings would occur annually in the spring prior to initiating irrigation for at least the first 3 years. Invasive grasses tend to encroach on new plantings and seedlings, removing soil moisture and nutrients, and effectively out-competing newly installed trees and shrubs. Mulch applications would reduce establishment of invasive grasses within the canopy of the plantings, evaporative loss of soil moisture, and soil compaction, while providing slow-release nutrients.

The health, vigor, and survivorship of all plant materials would be maintained and monitored by SAFCA. During the habitat establishment and maintenance period, SAFCA would periodically inspect the installed plantings and seeded areas to examine their condition, and would re-seed or install replacement plants where needed. Seed and replacement plants would be obtained from the same source used for the initial installation or from a similar local source.

Riparian plantings along the swale's edge may require protection during the establishment phase to limit damage from beavers and browsing deer. Low (e.g. 3 to 4 feet high) fencing may be installed around some plantings. This fencing would likely be constructed of welded wire mesh (steel) with 2-inch by 4-inch mesh openings. It would be placed directly on the soil surface, not keyed into the soil, and held in place with metal stakes. Alternatively, woody plants may be protected from beaver damage with staked chicken wire cages. All fencing and cages would be removed once riparian plantings are sufficiently established.

2.6 CONSTRUCTION SEQUENCING

Construction of the proposed culvert replacement portion of the project would begin in summer 2015 and would be completed by the end of the year. Swale modifications would begin in August 2015 and would be completed by the end of October 2015. Grass seeding would occur immediately following completion of construction and swale grading activities. Planting of riparian vegetation would likely be completed during September or October 2016 and would require approximately 7 days to complete. **Table 2-4** summarizes the estimated length of time required to construct individual components of the proposed project. Construction would occur between the hours of 7 a.m. and 6 p.m. Monday through Saturday, and between 9 a.m. and 6 p.m. on Sundays.

Table 2-4. Duration of Construction Activities	
Improvements	Estimated Duration
Temporary Bike Trail Realignment	
Installation	3 days
Removal	1 day
Culvert and Approach Channel Construction	
Excavation	4 days
Installation of Culvert and Rip-Rap Replacement	3 weeks
Backfill and Grading	5 days
Habitat Enhancement	
Swale Grading	2 days
Deep Ripping and Soil Improvements	3 days
Seeding Native Grass Mix	2 days
Installation of Riparian Plantings	5 days
Source: Data compiled by AECOM in 2015	

2.7 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

As the lead agency under CEQA, SAFCA has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and all other applicable regulations are met. Other permitting agencies that may have permitting approval or review authority over portions of the proposed project are listed below.

- **U.S. Army Corps of Engineers**—Department of the Army, Clean Water Act Section 404 Permit for discharge of fill to Waters of the U.S.; Rivers and Harbors Act Section 408 Permission.
- **U.S. Fish and Wildlife Service**—Federal Endangered Species Act (ESA) compliance; Section 7 consultation.
- **National Oceanic and Atmospheric Administration National Marine Fisheries Service**—ESA compliance; Section 7 consultation.
- **Central Valley Regional Water Quality Control Board**—Clean Water Act Section 401 Certification; and Clean Water Act Section 402 National Pollutant Discharge Elimination System stormwater permit for general construction.
- **Central Valley Flood Protection Board**—Floodway encroachment permit.
- **California Department of Fish and Wildlife**—Section 1602 streambed alteration agreement; California Endangered Species Act compliance.
- **Sacramento Metropolitan Air Quality Management District**—Title V permit for general construction.
- **Sacramento County**—Right-of-entry permit.
- **Western Area Power Administration**—Consent to Common Use of Transmission Line Right-of-Way.

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3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION		
1.	Project Title:	Site 18A Culvert Replacement and Fish Passage Enhancement Project
2.	Lead Agency Name and Address:	Sacramento Area Flood Control Agency, 1007 7th Street, 7th Floor Sacramento, CA 95814
3.	Contact Person and Phone Number:	John A. Bassett, Sacramento Area Flood Control Agency, (916) 874- 7606
4.	Project Location:	The proposed project is located south of Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, north of Del Paso Boulevard and east of Northgate Boulevard, approximately 1/4 mile east of Camp Pollock within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sacramento County, California
5.	Project Sponsor's Name and Address:	Sacramento Area Flood Control Agency (see above address)
6.	General Plan Designation:	Recreation/Waterway
7.	Zoning:	American River Parkway – Floodplain Zone
8.	Description of Project:	

The Sacramento Area Flood Control Agency is proposing to improve floodplain-creek connectivity and enhance vegetative cover in the Site 18A basin to improve fish rearing habitat, and reduce fish stranding and predation by piscivorous birds. For further information, see Chapter 2 of this Initial Study/Mitigated Negative Declaration.

9.	Surrounding Land Uses and Setting:	Industrial, residential and recreation. See "Environmental Setting" discussion under each issue area in Chapter 3, "Environmental Checklist."
10:	Other public agencies whose approval may be required:	U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service, California Department of Fish and Wildlife, Sacramento Metropolitan Air Quality Management District, Central Valley Regional Water Quality Control Board, Sacramento Municipal Utility District, Sacramento County and Central Valley Flood Protection Board

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation / Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance
		☒ None With Mitigation

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 ENVIRONMENTAL SETTING

Site 18A is an approximately 17-acre basin within the American River Parkway that contains seasonally flooded wetland and riparian habitat. The basin is surrounded by an approximately 13-feet-high embankment. The American River Bike Trail runs along the top of this embankment on all four sides of the basin. Dense riparian woodlands are located northeast of the site along both sides of NEMDC/Steelhead Creek and west of Northgate Boulevard. To the east of Site 18A is the NEMDC East Levee and commercial and light industrial land uses that include an indoor soccer arena, paper recycling facility, and an auto repair shop. The Sacramento Northern Bike Trail is located east of Site 18A and the bike trail runs in a north-south direction along the NEMDC East Levee crown. The closest residences to Site 18A are located to the north on the north side of the Arden-Garden Connector.

3.1.2 DISCUSSION

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

Less-than-Significant Impact. Scenic vistas are generally defined as a view of a highly valued landscape from a public viewpoint. The Sacramento 2030 General Plan designates views from public places to the Sacramento and American Rivers and adjacent greenways as scenic views (City of Sacramento 2014). The American River Parkway bike trail runs along the top of the embankment surrounding the project site. The bike trail near the northwest corner of the project site would be temporarily realigned to allow for construction site access to the existing culvert which crosses under the bike trail/berm on the northwest side of the basin. The trails along the north and east sides of the project site would be closed for use by haul trucks. Visual impacts would be temporary during construction, which is planned to begin in spring 2015 and be completed by the end of the year. Following construction, the bike trail would be returned to its pre-project alignment and conditions. The proposed project also includes a plan for habitat revegetation and enhancement to improve growth potential of riparian and seasonal wetland vegetation which would improve the scenic view of the project site. Because construction activities would be temporary and short-term, the bike trail would be returned to pre-project conditions following construction, and the habitat within the basin would be enhanced as a result of the proposed project, the proposed

project would not have a substantial adverse impact on any scenic views. This impact would be less than significant, and no mitigation would be required.

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

No Impact. State Route 160 is an officially designated scenic highway from the Contra Costa County line to the southern City limit of Sacramento. The portion of State Route 160 in the vicinity of the proposed project, called the North Sacramento Freeway, is not designated as a scenic highway. Therefore, there would be no impact with regard to damage to scenic resources within a State scenic highway and no mitigation would be required.

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

Less-than-Significant Impact. During construction, the visual character of the site would be somewhat degraded due to the presence of construction equipment, soil stockpiles, and construction worker vehicles in the basin and along the north and east sides of the bike trail/berm. After the culvert is replaced, habitat revegetation and enhancement would occur which would improve the visual quality of the project site. Because construction would be temporary and short-term, and habitat enhancements within the basin would improve the visual quality, this impact would be less than significant, and no mitigation would be required.

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

No Impact. The proposed project would not create any additional lighting at the project site. Construction at the project site would occur between the hours of 7:00 am and 6:00 pm Monday through Saturday; and between the hours of 9:00 am and 6:00 pm on Sunday, so there would be no need for lighting equipment to be used during construction. Therefore, there would be no impact, and no mitigation would be required.

3.2 AGRICULTURE AND FORESTRY RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forestry Resources. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 ENVIRONMENTAL SETTING

AGRICULTURAL RESOURCES

Site 18A is an approximately 17-acre seasonal wetland and seasonally flooded riparian habitat area in the American River Parkway. Site 18A was used as a borrow site in 1996, after which time, the area was graded and planted by SAFCA to support riparian floodplain and seasonal wetland habitat (see Section 3.10, "Land Use and Planning," for additional information on land uses within and adjacent to Site 18A). The site is not zoned for

agricultural uses and there are no active agricultural land uses or land held under a Williamson Act Contract within or in the vicinity of the site (California Department of Conservation [DOC] 2013). The site is also not zoned as forestland, timberland, or a Timberland Production Zone.

Farmland Mapping and Monitoring Program

The DOC's Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—recognize the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by DOC as "Agricultural Land." In addition, DOC identifies other categories based on their suitability for agricultural use. The list below provides a comprehensive description of all the categories mapped by the DOC. According to the Farmland Mapping and Monitoring Program (FMMP):

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.
- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
- **Unique Farmland**—Land of lesser quality soils used for the production of the State's leading agricultural cash crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California.
- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy, as defined by each county's local advisory committee and adopted by its board of supervisors.
- **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- **Urban and Built-Up Lands**—Land that is used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.
- **Land Committed to Nonagricultural Use**—Land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands.
- **Other Lands**—Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development.

The Important Farmland Map for Sacramento County, produced by the DOC Division of Land Resource Protection (2014), was used to evaluate the agricultural significance of the lands within and in the vicinity of Site 18A. According to the Sacramento County Important Farmland map, Site 18A is designated as Farmland of Local Importance and surrounding lands in the vicinity of Site 18A are designated as Farmland of Local Importance,

Urban and Built-Up Land, and Other Land (DOC 2014). These designations are not considered by the DOC as Important Farmland.

FORESTRY RESOURCES

Appendix G of the State CEQA Guidelines defines forestland as land that can support 10 percent native tree cover and woodland vegetation of any species—including hardwoods—under natural conditions, and that allows for management of one or more forest resource—including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation—and other public benefits (California Public Resources Code [PRC] 12220[g]).

Approximately 1.44 acres of Fremont cottonwood forest and approximately 4.24 acres of valley oak woodland occur within Site 18A. Fremont cottonwood forest occurs in the southwestern portion of Site 18A and is dominated by Fremont cottonwood and black willow. Valley oak woodland occurs along the northeastern, eastern, and western borders of Site 18A and is characterized by valley oak interspersed with interior live oak, Fremont cottonwood, and sycamore (see Section 3.5, "Biological Resources," for further discussion). Most of these trees were planted by SAFCA after 1996 as part of the restoration program following borrow extraction.

These communities do not represent 10 percent native tree cover on Site 18A and offer limited habitat for resident and migratory birds and small mammals because of the site's proximity to nearby urban development and associated roadways, walkways, and bike trails. Therefore, the Fremont cottonwood forest and valley oak woodland on the project site do not satisfy the requirements of PRC Section 12220(g).

3.2.2 DISCUSSION

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

No Impact. As discussed previously, Site 18A is designated by the Sacramento County Important Farmland Map, published by DOC's Division of Land Resource Protection, as Farmland of Local Importance (DOC 2014). The conversion of this land would not be considered a significant impact under the State CEQA Guidelines.

Because there are no agricultural land uses present within or in the vicinity of Site 18A, implementing the proposed project would not result in other changes in the physical environment that could result in the conversion of agricultural land, including Important Farmland, to nonagricultural uses. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. Site 18A and lands surrounding the site are not zoned for agricultural uses and there are no lands held under a Williamson Act Contract (DOC 2013). Therefore, implementing the proposed project would not conflict with existing zoning for agricultural uses or conflict with a Williamson Act contract. No impact would occur, and no mitigation would be required.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. Site 18A is not zoned as forestland, timberland, or a Timberland Production Zone. Thus, implementing the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources. No impact would occur, and no mitigation would be required.

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

No Impact. As stated previously, Site 18A does not contain forestland as defined by PRC Section 12220(g). Therefore, implementing the proposed project would not result in the loss of forestland or conversion of forestland to non-forest uses. No impact would occur, and no mitigation would be required.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. See responses to items a) and d) above. Implementing the proposed project would not result in other changes in the physical environment that could directly or indirectly result in the conversion of agricultural land, including Important Farmland, to nonagricultural uses or result in the conversion of forestland to non-forest uses. Therefore, no impact would occur, and no mitigation would be required.

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 ENVIRONMENTAL SETTING

The project study area is located within Sacramento County, which is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). SMAQMD is part of the Sacramento Valley Air Basin (SVAB). The SVAB encompasses Butte, Colusa, Glenn, Tehama, Shasta, Yolo, Sacramento, Yuba, and Sutter Counties and parts of Placer, El Dorado, and Solano Counties. The SVAB is bounded on the west and north by the Coast Ranges, on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada, and on the south by the San Joaquin Valley Air Basin. Summer conditions are typically characterized by high temperatures, low humidity, and light winds, with periods of moderate to strong southwesterly winds out of the San Francisco Bay Area and Sacramento-San Joaquin Delta regions. The regional rainy season occurs mainly from late October to early May, in amounts that vary substantially from year-to-year, and is characterized by brief periods of rain interspersed with stagnant and sometimes foggy weather.

The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) have identified six air pollutants as being of nationwide and Statewide concern: ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, lead, and particulate matter (PM). PM is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}) and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$).

Health-based air quality standards have been established for these pollutants by EPA at the national level and by ARB at the State level. These standards are referred to as the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQS), respectively. The NAAQS and CAAQS were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Both EPA and ARB designate areas of the State as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), respectively. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant. The "unclassified" designation is used in an area that cannot be classified as meeting or not meeting the standards, based on available information.

Sacramento County is currently designated as a nonattainment area for all ozone and $PM_{2.5}$ standards under NAAQS and CAAQS. Sacramento County is also designated as nonattainment for the 24-Hour and Annual PM_{10} California standards. Sacramento County technically attained the Federal 1-hour Ozone standard in 2009 but since EPA revoked this standard, some associated requirements still apply. SMAQMD has requested EPA recognize attainment to fulfill the requirements. Sacramento County is either an attainment area or unclassified for the remaining pollutants under NAAQS and CAAQS (SMAQMD 2013).

SMAQMD is the agency responsible for air quality planning and development of the air quality attainment plan (AQAP) in the study area. The AQAP establishes the strategies that will be used to achieve compliance with the CAAQS in all areas within SMAQMD's jurisdiction. All projects within SMAQMD's jurisdictional area are subject to adopted SMAQMD rules and regulations in effect at the time of construction and operation.

3.3.2 DISCUSSION

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

Less-than-Significant Impact. This impact is determined based on whether the proposed project would conflict with or obstruct implementation of the AQAP and/or applicable portions of the State Implementation Plan (SIP), which would lead to increases in the frequency or severity of existing air quality violations. The CCAA of 1988 requires the air districts to achieve and maintain the State ambient air quality standards by the earliest practicable date and develop plans for attaining the State ozone, CO, sulfur dioxide, and nitrogen dioxide standards.

Consistency with the AQAP is determined by analyzing a project with the assumptions in the plans. Temporary and short-term construction activities for the proposed project would involve the use of off-road equipment and haul trucks, as well as worker commute trips. Proposed project operations would not substantially increase long-term operational mobile-source emissions that were previously included in the AQAP. As discussed in greater detail under item b) below and summarized in **Table 3.3-1**, construction activities for the proposed project would generate daily oxides of nitrogen (NO_x) emissions that would be below SMAQMD's threshold of significance. SMAQMD thresholds of significance are considered the allowable emissions limits for each project to avoid impeding the region's attainment and maintenance of ambient air quality standards (i.e., the purpose of AQAPs). Accordingly, construction of the proposed project without mitigation would not exceed the assumptions used to develop the current AQAP and would not obstruct or conflict with the applicable air quality plan. Therefore, this impact would be less than significant, and no mitigation would be required.

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

Less-than-Significant Impact. Construction emissions are considered short-term and temporary, but they have the potential to represent a significant impact with respect to air quality. Construction of the proposed project would temporarily generate emissions of reactive organic gases (ROG) and NO_X, CO, PM_{10}, and $PM_{2.5}$. Emissions of ozone precursors (e.g., ROG and NO_X) are generated primarily by on-road mobile sources (i.e., delivery vehicles, haul trucks, construction worker vehicles) and off-road construction equipment. The level of emissions generated varies as a function of vehicle trips per day for worker commute trips and haul truck trips, and the types and number of heavy-duty, off-road equipment used and their respective intensity and frequency of operation.

Fugitive PM dust is one of the pollutants of greatest concern with respect to construction activities. Construction-related fugitive PM dust emissions can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance. The culvert replacement (i.e., excavation of soil) and swale grading activities would be the primary source of fugitive PM dust emissions from construction activities. Movement of off-road construction equipment and work trucks on unpaved roads can also generate fugitive PM dust emissions.

Construction-related exhaust emissions were modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, which was the most currently available version at the time of this analysis. CalEEMod allows the user to enter project-specific construction information, such as the types, number, and horsepower of construction equipment, and the number and length of off-site motor vehicle trips. Construction-related emissions for the proposed project were estimated for construction worker commutes, haul trucks, and the use of off-road equipment. **Table 3.3-1** shows the unmitigated emissions associated with construction activities.

As shown in **Table 3.3-1**, temporary and short-term construction-related emissions for the proposed project would result in maximum daily emissions of approximately 78.85 pounds of NO_X, which would be below the SMAQMD threshold of significance. Projects that generate construction-related emissions below SMAQMD's threshold of significance are considered to generate emissions below the allowable limit to avoid violating or substantially contributing to an air quality violation. In addition, regardless of the level of emissions, SMAQMD requires all projects to implement their Basic Construction Emission Control Measures (listed below). Therefore, with implementation of the SMAQMD Basic Construction Emission Control Measures, this impact would be less than significant, and no mitigation would be required.

The following SMAQMD Basic Construction Emission Control Measures are required for all projects regardless of the level of emissions:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover, maintain at least 2 feet of free board space, or maintain suitable moisture condition in the materials in haul trucks transporting soil, sand, or other loose material.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

Table 3.3-1. Proposed Project Unmitigated Construction Emissions				
	Daily Emissions (lbs/day)			
Construction Phase	ROG	NO_X	PM_{10}	$PM_{2.5}$
Temporary Bike Trail Realignment				
Installation	2.50	24.29	1.70	1.50
Removal	0.44	3.96	0.40	0.31
Culvert and Approach Channel				
Excavation	2.48	78.85	197.48	31.08
Install Culvert and Rip-Rap Replacement	3.28	31.99	8.61	2.86
Backfill and Grading	1.91	26.03	4.19	1.50
Habitat Enhancement				
Swale Grading	1.24	12.36	66.32	14.31
Deep Ripping and Soil Improvements	2.14	23.70	33.99	7.88
Seeding Native Grass Mix	0.13	0.98	0.17	0.09
Installation of Riparian Plantings	0.13	0.98	0.17	0.09
Irrigation	0.50	3.59	0.27	0.27
Maximum Daily Emissions	3.28	78.85	197.48	31.08
SMAQMD Threshold	N/A	85	N/A	N/A
Exceeds project threshold?	-	No	-	-

Notes: lbs/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 micrometers; ROG = reactive organic gases; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 micrometers

Source: MGE Engineering, data compiled and modeled by AECOM 2015

- Limit vehicle speed on unpaved roads to 15 mph.
- Complete pavement of all roadways, driveways, sidewalks, 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.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. Have the equipment checked by a certified mechanic and determined to be running in proper condition before it is operated.

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

Less-than-Significant Impact. The cumulative analysis focuses on whether a specific project would result in a cumulatively considerable incremental contribution in pollutant emissions to an existing significant cumulative impact. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional

pollutants is a result of past and present development within the SVAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

SMAQMD's thresholds of significance are relevant to whether a project's individual emissions would result in a cumulatively considerable incremental contribution to existing cumulatively significant air quality conditions. These thresholds are designed to identify those projects that would result in significant levels of air pollution on a project level, and to assist the region in attaining the applicable CAAQS and NAAQS. Projects that would exceed these thresholds would be considered significant on a project level and would also be considered to contribute a cumulatively considerable amount of pollutants to regional emissions. As shown in **Table 3.3-1** and discussed under item b), the proposed project would not generate temporary and short-term construction-related emissions that exceed any of SMAQMD's thresholds of significance. Therefore, this impact would be less-than significant, and no mitigation would be required.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. Some members of the population are especially sensitive to emissions of air pollutants and should be given special consideration during the evaluation of a project's air quality impacts. These people include children, older adults, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptor to the project site is a group of single-family residences located approximately 400 feet north of the project site. In addition, the project site is surrounded by a portion of the American River Parkway bike trail that is used for recreational purposes (i.e., biking, running, and walking). However, because of the short-term nature of construction activities (i.e., total of 2 months of construction), implementation of SMAQMD-required Basic Construction Emission Control Measures, and the minimal exposure that recreational trail users would be exposed to (i.e., exposed only along that particular segment of the American River Parkway), it is not anticipated that the proposed project would expose recreational users of the American River Parkway to substantial pollutant concentrations.

The greatest potential for toxic air contaminant (TAC) emissions would be related to diesel PM emissions associated with activity by heavy-duty construction equipment. ARB classified diesel PM as a TAC in 1998. Most of the estimated local health risk from TACs is from diesel PM. Construction emissions associated with the proposed project would last approximately 2 months, after which all construction activities and associated diesel PM emissions would cease.

The dose to which receptors are exposed is the primary factor used to determine health risk and is a function of the concentration and duration of exposure. According to the State Office of Environmental Health Hazard Assessment (OEHHA), health-risk assessments that determine the health risks associated with exposure of residential receptors to TAC emissions should be based on a 70-year exposure period (OEHHA 2003). However, health-risk assessments should be limited to the period/duration of activities associated with the emissions activity. Therefore, the total exposure time where some level of construction activities and subsequent diesel PM emissions are occurring would be approximately 2 months, which is less than the minimum number of years recommended for a health-risk assessment and less than 1 percent of the total exposure time for a typical health-risk assessment. The dose (i.e., concentration levels) to which nearby receptors would be exposed is of concern

because of their distance from the project site (approximately 400 feet from the nearest sensitive receptor to the site). ARB's *Air Quality and Land Use Handbook* states that PM levels drop by 70 percent at a distance of 500 feet from a roadway. Although the nearest sensitive receptor would be closer than the 500 feet, it is anticipated that the intermittent nature and low intensity of construction emissions compared to a roadway with constant traffic, coupled with the 400 feet would minimize pollutant concentrations from the proposed construction activities.

In addition, although a majority of construction emissions associated with culvert replacement and bike trail realignment would be focused at the north end of the site, construction activities such as swale grading would occur throughout the project site farther away from the nearest sensitive receptor. Although a majority of the proposed project's total construction-related TAC emissions would occur within 400 feet of the sensitive receptors, most residents of households tend to spend a majority of their daytime weekdays away from home either at work or school which is when the construction activities are expected occur. Furthermore, as described above, total construction activities would last approximately 2 months and would cease following completion of the proposed project. Therefore, it is anticipated that a majority of diesel PM emissions would occur when the nearest sensitive receptors are away from their residences and thus limiting exposure time. It should be noted that construction activities could also occur on Saturdays when sensitive receptors are more likely to be present in their homes and the American River Parkway is more frequently used. However, because of the temporary and short-term nature of the proposed project (i.e., total of 2 months), weekend construction workdays would be limited (i.e., total of eight Saturdays of work) and would cease following completion of the proposed project.

Because of the temporary and intermittent use of off-road construction equipment, and the spatial-temporal activity of the nearest sensitive receptors, the dispersive properties of diesel PM (Zhu et al. 2002), and the relatively low exposure period, temporary and short-term construction activities would not result in the exposure of sensitive receptors to substantial TAC concentrations. This impact would be less than significant. No mitigation would be required.

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

Less-than-Significant Impact. The occurrence and severity of odor impacts depend on numerous factors such as the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Offensive odors rarely cause any physical harm, but they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. SMAQMD recommends that lead agencies consider the potential of a project to locate receptors near an existing odor source or to locate an odor source near existing sensitive receptors.

Construction of the proposed project is not anticipated to expose nearby off-site receptors to objectionable odors. Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The closest sensitive receptor to the project site is located at least 400 feet from the boundary of the project site, which would allow an opportunity for the intermittent and temporary odor emissions to disperse and dilute with ambient air. In addition, and as described above in question d), the nearest residents would most likely be at work or school and therefore not be in or around their residences when a majority of the construction activities are occurring. In addition, as described above, the project site is also surrounded by a portion of the American River Parkway bike trail, which is used for recreational purposes. However, recreational users would only be exposed to potential odors from the

project site for a limited amount of time based on the temporary and short-term nature of construction activities and the finite segment of the trail adjacent to the proposed project. Therefore, it is not anticipated that the proposed project would expose recreational users of the American River Parkway to objectionable odors.

Because of the diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with project construction. The proposed project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. After construction of the proposed project, all construction-related odors would cease. Operation of the proposed project would not add any new odor sources. As a result, the proposed project would not create objectionable odors affecting a substantial number of people. This impact would be less than significant. No mitigation would be required.

3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

Information on biological resources known to or with potential to occur on and adjacent to the project site is based on multiple field surveys conducted by AECOM biologists and SAFCA ecologists in late 2014 and early 2015. Biological resource databases, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) online inventory of rare and endangered plants (CNPS 2014), were queried for records of sensitive species occurrences in the vicinity of the project site. Historical aerial photography and documents addressing biological resources in the project vicinity and the larger region also were reviewed.

3.4.1 ENVIRONMENTAL SETTING

As described in Chapter 2, “Project Description,” most of the project site is a basin that was graded and planted to support floodplain riparian and seasonal wetland habitat following borrow excavation in 1996. As a result of the grading, the basin floor contains a mosaic of excavated swales and higher elevation islands. The elevation range of the project site is approximately 10 to 25 feet above mean sea level, with the highest elevations on the berms

surrounding the basin and the lowest elevation at the bottom of the swale in the northwest corner of the basin, where it enters the culvert connecting to the NEMDC/Steelhead Creek.

The project site is not located in an area included in an adopted Habitat Conservation Plan (HCP), natural community conservation plan, or other approved State, regional, or local HCP, including the Natomas Basin Habitat Conservation Plan.

VEGETATION

Exhibit 3.4-1 shows habitats present in the study area for the wetland delineation conducted in January and February 2015. On-site vegetation varies with the topography, supporting valley oak (*Quercus lobata*) woodland on the tops of the basin berms and NEMDC/Steelhead Creek banks, wild oats grassland in open areas on the berm slopes, planted black willow (*Salix gooddingii*) thickets on the higher basin islands, perennial rye grass (*Festuca perennis*) fields in higher areas of the basin floor, Fremont cottonwood (*Populus fremontii*) forest at the southern end of the basin, chamomile-popcornflower patches in swales at the southern end of the basin, and seasonal wetland/smartweed cocklebur patches in the northern swales.

The valley oak woodland community is characterized by a moderately dense canopy of valley oak with a predominantly herbaceous understory composed primarily of nonnative annuals. Occasional interior live oak (*Quercus wislizeni*), Fremont cottonwood, and sycamore (*Platanus racemosa*) trees are present, as well as scattered patches of Santa Barbara sedge (*Carex barbarae*), Himalayan blackberry (*Rubus armeniacus*) and poison hemlock (*Conium maculatum*). Wild oats grasslands are dominated by nonnative wild oat (*Avena fatua*), with a diverse mixture of mostly nonnative grasses and forbs. Black willow thickets are characterized by an open canopy of small, even-aged black willow trees with a perennial rye grass understory. The perennial rye grass fields are dominated or co-dominated by nonnative perennial rye grass and other nonnative herbs. The patch of cottonwood forest is dominated by Fremont cottonwood and includes black willow trees, scattered Himalayan blackberry shrubs, and Bermuda grass (*Cynodon dactylon*), chicory (*Cichorium intybus*), and white sweetclover (*Melilotus albus*) in the understory. Dominant species in the southern swales include stalked popcornflower (*Plagiobothrys stipitatus*), stinking chamomile (*Anthemis cotula*), and Bermuda grass, while the northern swales are dominated by dotted smartweed (*Persicaria punctata*) and/or rough cocklebur (*Xanthium strumarium*).

WILDLIFE

The American River corridor provides important habitat for resident and migratory wildlife in a landscape dominated by urban development. It serves as a critical pathway and connection to the Sacramento River corridor for migratory and dispersing fish and wildlife species. The value of habitat on and adjacent to the project site is somewhat limited by nearby urban development and associated roadways, walkways, and bike trails. However, riparian and aquatic habitat along the NEMDC/Steelhead Creek and grassland and riparian habitat west and south of the site are likely to be used by a relatively high diversity of species.

Several resident bird species were observed during the field survey, including California gull (*Larus californicus*), Anna's hummingbird (*Calypte anna*), northern flicker (*Colaptes auratus*), bushtit (*Psaltriparus minimus*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), and yellow-billed magpie (*Pica nuttalli*). Additional species are likely to use the area during the migration and breeding seasons. Trees and shrubs on and adjacent to the site provide suitable nesting habitat for a number of species, and old swallow nests were observed on the underside of the Northgate Boulevard bridge over the NEMDC/Steelhead Creek. Native species

Source: adapted by AECOM in 2015

Exhibit 3.4-1. Habitat Map

that have been known to or are expected to nest in this portion of the American River corridor include resident and migratory species, such as Swainson's hawk (*Buteo swainsoni*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), Nuttall's woodpecker (*Picoides nuttallii*), western kingbird (*Tyrannus verticalis*), American crow, western scrub-jay, tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), bushtit, American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Haemorhous mexicanus*).

Several species of common amphibians, reptiles, and small- and medium-sized mammals could occur on or adjacent to the project site, although the diversity of species in these groups is likely to be much lower than the avian species. In addition, burrowing mammals would largely be restricted to higher ground along the perimeter of the site that is not subject to flooding, and no evidence of California ground squirrel (*Otospermophilus beecheyi*) was observed during the field survey. Species documented during the field surveys or anticipated to occur in the vicinity include bullfrog (*Lithobates catesbeianus*), western toad (*Anaxyrus boreas*), red-eared slider (*Trachemys scripta elegans*), western fence lizard (*Sceloperus occidentalis*), gopher snake (*Pituophis catenifer*), California vole (*Microtus californicus*), California deermouse (*Peromyscus californicus*), Botta's pocket gopher (*Thomomys bottae*), Audubon's cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), raccoon (*Procyon lotor*), and North American beaver (*Castor canadensis*).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources addressed in this section include those that are afforded consideration or protection under CEQA, California Fish and Game Code, California Endangered Species Act (CESA), Federal Endangered Species Act (ESA), Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Special-status Species

Special-status species include plants and animals in the following categories:

- species officially listed by the State or Federal government as endangered, threatened, or rare;
- candidates for State or Federal listing as endangered or threatened;
- taxa (i.e., taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in State CEQA Guidelines California Code of Regulations (CCR) Section 15380;
- species identified by CDFW as species of special concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local or regional planning documents; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR).

The CRPR system includes six rarity and endangerment ranks for categorizing plant species of concern. All plants with a CRPR are considered "special plants" by CDFW. The term "special plants" is a broad term used by CDFW to refer to all of the plant taxa inventoried in the CNDDB, regardless of their legal or protection status. Plants ranked as CRPR 1A, 1B, 2A, and 2B may qualify as endangered, rare, or threatened species within the definition of State CEQA Guidelines CCR Section 15380, and CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA documents.

The term "California species of special concern" is applied by CDFW to animals not listed under the Federal ESA or CESA, but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers and have known threats to their persistence.

An initial list of special-status species that could potentially occur on or adjacent to the project site, provided suitable habitat conditions are present, was developed through review of CNDDB (2014) and CNPS Inventory (2014) records and a list generated from the database of endangered species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS), Sacramento Office (USFWS 2014). These sources were queried for the Sacramento West U.S. Geological Survey 7.5-minute quadrangles, within which the project area is located, and the eight surrounding quadrangles (Sacramento East, Taylor Monument, Rio Linda, Citrus Heights, Carmichael, Clarksburg, Florin, and Elk Grove).

Most of the species included on the USFWS list and/or in the results of the CNDDB and CNPS database searches were eliminated from consideration because they are restricted to habitat conditions that are not present on or immediately adjacent to the project site and/or the site is outside of their current known distribution. For example, the project site does not provide suitable habitat for any special-status plant species that were evaluated, all of which are restricted to habitats such as vernal pools and similar seasonal wetlands, marshes and swamps, and tidally influenced habitats. However, as discussed further below, one special-status plant species was included in post-borrow restoration plantings. In addition, no blue elderberry (*Sambucus nigra* ssp. *cerulea*) shrubs, the host plant of valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), are present on or adjacent to the site, and giant garter snake (*Thamnophis gigas*) is unlikely to occur as aquatic habitat conditions for the species are poor along the lower reaches of the NEMDC/Steelhead Creek because of extensive riparian cover, immediately adjacent urban development, and rocky channel substrate.

Table 3.4-1 summarizes information on special-status species that were determined to have at least low potential to occur in the project vicinity, based on conditions observed during the field surveys and review of database occurrences and other information on species distributions. These species are discussed further in the subsequent sections.

Woolly Rose-mallow

Despite the lack of marsh habitat onsite or along adjacent portions of NEMDC/Steelhead Creek, woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*) is addressed in this analysis because there is some potential for it to persist in the restoration area. A total of 35 individuals of this perennial herb were planted during the initial restoration activities in 1997, and 14 individuals were present when success monitoring was last conducted in 2003. Some of these individuals may still occur, but they were unidentifiable when the wetland delineation and general biological field survey were conducted in January and February 2015.

Table 3.4-1. Special-status Species with Potential to Occur in or Adjacent to the Project Area					
Species	Status[1]			Habitat Associations	Potential for Occurrence in the Project Area
	Federal	State	CRPR		
Plants					
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–	–	1B.2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs; blooms June - September.	Low. Individuals were planted onsite during restoration in the late 90s, but the site does not currently support suitable habitat; none were found during the January and February 2015 field surveys, but individuals may not have been identifiable at the time.
Fish					
North American green sturgeon southern DPS *Acipenser medirostris*	T	SSC	–	Spawns in rivers with suitable gravel; rears in freshwater and estuarine habitats.	Moderate. Known to occur in the Sacramento River and could occasionally wander up NEMDC/ Steelhead Creek
Pacific lamprey *Entosphenus tridentatus*	SC	–	–	Streams, mainstem rivers, estuaries, and nearshore ocean waters.	Moderate. Could occur in the Sacramento and American Rivers and NEMDC/ Steelhead Creek.
River lamprey *Lampetra ayresi*	–	SSC	–	Streams, mainstem rivers, estuaries, and nearshore ocean waters.	Moderate. The project vicinity is within the species' known range and rearing and migratory habitat are present in the Sacramento and American Rivers, and potentially NEMDC/ Steelhead Creek.
Hardhead *Mylopharadon conocephalus*	SC	SSC	–	Adults occur in deep, clear pool and run habitats; juveniles occur in shallow water and along the shoreline of stream reaches.	Moderate. Likely to occur in the Sacramento and American Rivers; water quality in NEMDC/Steelhead Creek is unlikely to support year-round residency.
Central Valley steelhead DPS *Oncorhynchus mykiss*	T	–	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento and American Rivers and NEMDC/ Steelhead Creek.
Central Valley spring-run Chinook salmon ESU *Oncorhynchus tshawytscha*	T	T	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento River and was recorded (based on size) in a pond in the Site 18A basin in 1999.
Sacramento River winter-run Chinook salmon ESU *Oncorhynchus tshawytscha*	E	E	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento River and was recorded in a pond in the Site 18A basin in 1999.

Table 3.4-1. Special-status Species with Potential to Occur in or Adjacent to the Project Area					
Species	Status[1]			Habitat Associations	Potential for Occurrence in the Project Area
	Federal	State	CRPR		
Central Valley fall/late fall–run Chinook salmon ESU *Oncorhynchus tshawytscha*	SC	SSC	–	Spawns in cold streams with suitable gravel; rears in seasonal floodplains, rivers and tributaries, and in the Bay-Delta.	High. Known to occur in the Sacramento and American Rivers and was recorded in a pond in the Site 18A basin in 1999.
Sacramento splittail *Pogonichthys macrolepidotus*	–	SSC	–	Sloughs, lakes, rivers and estuaries with low to moderate current; inundated vegetation for spawning.	Moderate. Expected to occur in the Sacramento and American Rivers in wet years; could occur in NEMDC/Steelhead Creek.
Reptiles					
Northern western pond turtle *Actinemys marmorata*	–	SSC	–	Permanent or nearly permanent water bodies in various habitats, including ponds, marshes, rivers, streams, and ditches.	Moderate. NEMDC/Steelhead Creek provides marginally suitable aquatic habitat and adjacent open uplands in the American River corridor could provide suitable nesting habitat.
Birds					
White-tailed kite *Elanus leucurus*	–	FP	–	Nests in riparian zones, oak woodlands, and isolated trees; forages in grasslands and agricultural fields.	High. Adjacent grasslands likely provide suitable foraging habitat, and trees along the perimeter of and adjacent to the project site provide potential nest sites.
Swainson's hawk *Buteo swainsoni*	–	T	–	Nests in riparian forest and scattered trees; forages in grasslands and agricultural fields.	High. Adjacent grasslands likely provide suitable foraging habitat, and trees along the perimeter of and adjacent to the project site provide potential nest sites.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	T	E	–	Riparian forest with dense deciduous trees and shrubs.	Low. No current nesting populations occur in the region and onsite habitat quality is marginal, but migrating individuals could occasionally occur in the project vicinity.
Bank swallow *Riparia riparia*	–	T	–	Forages in a variety of habitats and nests in vertical banks or bluffs of suitable soil, typically adjacent to water.	Moderate. No suitable nesting habitat on or adjacent to the project site, but individuals from nest colonies along the lower Sacramento River could forage onsite.
Purple martin *Progne subis*	–	SSC	–	Nests in bridges in the Sacramento urban area and forages in adjacent open habitats.	Moderate. Not known to nest in Northgate Boulevard Bridge, but individuals from nest colonies elsewhere in the vicinity could forage onsite.

Table 3.4-1. Special-status Species with Potential to Occur in or Adjacent to the Project Area					
Species	Status[1]			Habitat Associations	Potential for Occurrence in the Project Area
	Federal	State	CRPR		
Least Bell's vireo *Vireo bellii pusillus*	E	E	–	Typically occurs in structurally diverse riparian habitat with a dense shrub layer.	Low. Project site does not provide suitable nesting habitat, and the subspecies has been largely extirpated from the Central Valley; individuals recently attempted to nest in the Yolo Bypass Wildlife Area and could occasionally occur in the project vicinity.
Song sparrow ("Modesto" population) *Melospiza melodia*	–	SSC	–	Nests and forages in dense vegetation in marsh, riparian forest and scrub, and along irrigation and drainage canals.	Low. Project site and adjacent areas provide marginal quality habitat, and the species is not known to nest in the project vicinity.

Notes: Bay-Delta = San Francisco Bay/Sacramento–San Joaquin Delta; CRPR = California Rare Plant Rank; DPS = distinct population segment; ESU = evolutionarily significant unit

[1] Status Definitions:

Federal Listing Categories

T = Threatened

E = Endangered

SC = Species of concern

– = No status

State Listing Categories

T = Threatened

E = Endangered

SSC = Species of special concern

– = No status

California Rare Plant Ranks

1B = Plants rare, threatened, or endangered in California and elsewhere

Extension:

.2 = Fairly endangered in California (20–80 percent of occurrences are threatened)

Sources: CNDDB 2014; CNPS 2014; USFWS 2014; based on data collected and compiled by AECOM in 2014 and 2015.

Fish

Nine special-status fish taxa are known or have potential to occur in NEMDC/Steelhead Creek. Four of these taxa are anadromous salmonids that begin life in fresh water but spend most of their lives in the sea, before returning to fresh water to spawn. These include three evolutionarily significant units of Chinook salmon (*Oncorhynchus tshawytscha*) and a distinct population segment of steelhead (*Oncorhynchus mykiss*). All of these taxa are known to occur in nearby reaches of the Sacramento River and could be present in the NEMDC/Steelhead Creek. Four of the taxa, Central Valley steelhead and winter-run, spring-run, and fall-/late fall-run Chinook salmon, were captured during sampling of ponded habitat on the project site in April 1999 (Jones & Stokes 1999). However, steelhead are unlikely to occur in the NEMDC/Steelhead Creek during summer months, when flows are low and water temperature is high.

Green sturgeon (*Acipenser medirostris*) and the two species of lamprey, Pacific lamprey (*Entosphenus tridentatus*) and river lamprey (*Lampetra ayresi*), are also anadromous. Green sturgeon spawn predominantly in

the upper Sacramento River and return to San Francisco Bay and nearshore marine waters to feed and mature. The lamprey species spend the majority of their lives in freshwater, returning to the sea for a relatively short time before re-entering fresh water to spawn. None of these species is known to occur in NEMDC/Steelhead Creek but habitat conditions may be suitable for them, depending on water quality and temperature, and they could occasionally wander upstream to the project area.

Hardhead (*Mylopharadon conocephalus*) is a freshwater species with a wide distribution in low- to mid-elevation streams in the Sacramento and San Joaquin river drainages. Sacramento splittail (*Pogonichthys macrolepidotus*) typically occur in brackish waters but move upstream into less-saline waters to spawn. Both of these species likely have low potential to occur in the NEMDC/Steelhead Creek, but they could be present when conditions are suitable, such as when clear, deep pools and low-velocity runs are available for hardhead and in wet years for splittail.

Northern Western Pond Turtle

NEMDC/Steelhead Creek provides marginally suitable aquatic habitat for northern western pond turtle (*Actinemys marmorata*), and uplands on the project site could provide suitable nesting habitat. The area is not anticipated to support a large population of pond turtles, because surveys conducted at various sites throughout the Sacramento River Basin indicate the species occurs primarily in relatively undisturbed foothill rivers and creeks or in reserves and other protected areas. Red-eared sliders are likely to occur in larger numbers in the area, because they are typically more common in urban areas and northern western pond turtle abundance is often low at sites with high red-eared slider densities (Thomson et al. 2010).

Birds

A number of special-status birds could occur on or adjacent to the project site. Two of these species, western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) and least Bell's vireo (*Vireo bellii pusillus*), have low potential to occur onsite, because they do not nest in the project vicinity, the area provides only marginally suitable habitat for them, and they would only occur during migration. Bank swallow (*Riparia riparia*) and purple martin (*Progne subis*) breed in the local region, but no suitable nesting habitat is present for them on or adjacent to the project site. Therefore, their presence onsite would be limited to foraging individuals that nest at nearby colonies.

The only special-status bird species with potential to nest on or near the project site are Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), and Modesto song sparrow (*Melospiza melodia*). Several Swainson's hawk and white-tailed kite nests have been documented in the project vicinity, primarily within the American River corridor. Potentially suitable nest trees are present along the perimeter of the project site, and grasslands to the west and southeast likely provide suitable foraging habitat. The project site may also provide some foraging habitat, although of less value due to flooding. Shrubby vegetation along portions of the perimeter of the project site and in areas adjacent to the site provides marginally suitable nesting habitat for song sparrow, and this species could forage throughout the site when it is not ponded and supports vegetation.

Sensitive Habitats

Critical Habitat

Critical habitat is a geographic area containing features determined by USFWS or National Marine Fisheries Service (NMFS) to be essential to the conservation of a species listed as threatened or endangered under the ESA. Critical habitat does not have to be occupied by that species at the time it is designated, but it may be considered necessary for the recovery of the species.

Critical habitat designated for Central Valley steelhead in 2005 includes portions of the Sacramento and American Rivers nearest to the project site, as well as the NEMDC/Steelhead Creek, immediately adjacent to the project site. Critical habitat designated for Central Valley spring-run Chinook salmon, also in 2005, includes the Sacramento and lower American rivers. Critical habitat for Sacramento River winter-run Chinook salmon was designated in 1993 and includes the Sacramento River.

Three units of critical habitat were designated for valley elderberry longhorn beetles when the species was listed as threatened in 1980. All three units are along the lower American River, within 10 miles of the project site. The nearest unit is within several hundred feet of the southeast corner of the site but is separated from the site by State Route 160.

Essential Fish Habitat

Section 305(b)(2) of the Magnuson Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires that essential fish habitat (EFH) be identified and described in Federal fishery management plans. EFH includes waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. Freshwater EFH for Pacific Coast salmon in the Central Valley includes waters currently or historically accessible to salmon, as described in Myers et al. (1998). EFH for Central Valley spring-run and Sacramento River winter-run Chinook salmon includes juvenile rearing habitat in NEMDC/ Steelhead Creek; EFH for Central Valley fall-/late fall-run Chinook salmon includes migration, holding, and rearing habitat in NEMDC/Steelhead Creek.

Other Habitats Protected under Federal and State Regulations

Under Section 404 of the Federal CWA, the U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into aquatic features that qualify as waters of the United States; wetlands that support hydrophytic vegetation, hydric soil types, and wetland hydrology may also qualify for USACE jurisdiction under Section 404 of the CWA. Under Section 401 of the CWA, the Central Valley Regional Water Quality Control Board (RWQCB) regulates discharge of dredged or fill material into waters of the United States to ensure such activities do not violate State or Federal water quality standards; the Central Valley RWQCB also regulates waters of the State, in compliance with the Porter-Cologne Act. In addition, all diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources is subject to the regulatory approval of CDFW pursuant to Section 1602 of the California Fish and Game Code.

Aquatic features on and adjacent to the project site qualify for protection as jurisdictional waters of the United States under Sections 404 and 401 of the CWA and waters of the State under the Porter-Cologne Act. NEMDC/ Steelhead Creek is considered a water of the United States and water of the State, and seasonal wetland habitat in

the basin swales is anticipated to be considered jurisdictional waters of the United States and/or waters of the State. Based on the wetland delineation conducted on January 7 and February 5, 2015, a total of 0.11 acre of relatively permanent waters and 1.46 acres of seasonal wetlands are present in the delineation study area. The delineation report is pending verification by the USACE. NEMDC/Steelhead Creek and associated riparian habitat also qualify for CDFW jurisdiction under Section 1602 of the California Fish and Game Code.

3.4.2 DISCUSSION

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS?

SPECIAL-STATUS PLANTS

Less than Significant with Mitigation Incorporated. The only special-status plant determined to have potential to occur on or adjacent to the project site is woolly rose-mallow. Although the project site does not support habitat typically considered suitable for this or any other special-status plant species, woolly rose-mallow was planted during restoration of the site in 1997, and some individuals may persist on-site. Such plants could be directly destroyed, if they are present in areas where excavation, grading, and other ground-disturbing activities would occur during project construction and revegetation. They could also be indirectly affected if present in areas adjacent to such activities. Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to adversely affect woolly rose-mallow. Aside from populations along the Sacramento River and the Deep-water Ship Channel and at Stone Lakes National Wildlife Refuge, known extant populations of wooly rose-mallow in the region are very rare. Therefore, loss of planted individuals that continue to survive onsite could be considered a substantial adverse effect on the local population and a potentially significant impact.

Mitigation Measure BIO-1: Conduct Pre-construction Survey for Woolly Rose-Mallow and Implement Impact Avoidance and Minimization Measures.

SAFCA shall implement the following measures to avoid and minimize adverse impacts to woolly rose-mallow.

a) Before construction activities begin, a focused survey will be conducted by a qualified botanist for woolly rose-mallow shrubs that may be present in or within 50 feet of areas where ground disturbance would occur. To the extent feasible, depending on timing of project implementation, surveys will be conducted during the blooming period for this species (June–September).

b) If woolly rose-mallow is detected, areas where the species occurs will be fenced for complete avoidance during project implementation, to the extent feasible.

c) If woolly rose-mallow is present in areas where disturbance cannot be avoided, a qualified botanist will assess the feasibility of salvaging and transplanting individuals as part of the revegetation component of the project. If such actions are deemed feasible, they will be implemented under the direction of a qualified botanist and in coordination with CDFW.

Timing: Before construction activities begin and during revegetation.

Responsibility: Sacramento Area Flood Control Agency.

Implementation of Mitigation Measure BIO-1 would reduce this impact to a less-than-significant level because it would avoid and minimize adverse effects on woolly rose-mallow.

SPECIAL-STATUS WILDLIFE

The proposed project has the potential to adversely affect several special-status wildlife known or with potential to occur in the project area, including eight fish taxa, one reptile species, and seven bird taxa, as discussed further below.

Fish

Less than Significant with Mitigation Incorporated. The portion of NEMDC/Steelhead Creek adjacent to the project site does not provide spawning habitat for any special-status fish, and potential rearing habitat is of marginal quality. However, Central Valley steelhead are known to pass through the project area en route to and from upstream spawning habitat. In addition, steelhead, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley fall-/late fall-run Chinook salmon were documented onsite when the basin flooded and trapping was conducted in 1999. Other species that occur in the Sacramento River also could occasionally wander up the NEMDC/Steelhead Creek and occur in the project area.

Project implementation would include grading and streambank alteration in the Site 18A basin and adjacent to NEMDC/Steelhead Creek, which could affect existing instream aquatic and shaded riverine aquatic (SRA) habitat. Approximately 6 acres of floodplain habitat would be graded or ripped and disked, and the NEMDC/ Steelhead Creek shoreline could be disturbed during culvert replacement and excavation of the outlet channel. Five trees of 12-inch or greater diameter at breast height (dbh) adjacent to the NEMDC/Steelhead Creek shoreline are within the areas where ground disturbance would occur and would be removed to facilitate project construction. These trees are generally located in upland areas but could provide a small amount of SRA habitat function during periods of high outflow. However, this impact is anticipated to be minor, because loss of this habitat is unlikely to substantially reduce the contribution of large woody material. Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to result in substantial adverse effects on floodplain or shoreline habitat.

Excavation, grading, and other construction activities could result in indirect adverse effects on special-status fish if they result in discharge of soil into NEMDC/Steelhead Creek. This could adversely affect water quality of aquatic habitat immediately adjacent to and downstream of the grading area. Water quality impacts could affect the physical health of fish, depending on the severity of the discharge. Soil and associated contaminants that enter receiving waters through stormwater runoff and erosion can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to fish and other aquatic organisms. These effects are unlikely to extend to the Sacramento River, approximately 2 miles downstream, or to the American River, which is approximately 1,000 feet from the closest portion of the project site and is only hydrologically connected during high flood stages.

Implementation of the proposed project would result in an overall enhancement of habitat for special-status fish. Construction of the proposed culvert would reduce the potential for stranding of juvenile Chinook salmon, steelhead, and other migratory fishes. Rearing habitat and overhead cover in the floodplain would be improved by planting seasonal wetland plants (e.g., sedges, rushes) and willow scrub. This would provide increased depth for protection from predation by birds and mammals, and the associated revegetation along the edges of the swales would create SRA and eventually large woody material for increased cover and protection from predatory fish. These actions would contribute to the recovery of special-status fish by improving floodplain connectivity and habitat conditions and reducing predatory fish habitat.

Despite the overall improvement in habitat quality and reduction in stranding potential, potential indirect adverse effects on water quality during construction activities could have a substantial adverse effect on special-status fish, if present in NEMDC/Steelhead Creek. Therefore, potential impacts on special-status fish are considered potentially significant.

Mitigation Measure BIO-2: Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek.

SAFCA shall implement the following measures to avoid and minimize disturbance to special-status fish in NEMDC/Steelhead Creek.

a) No grading work within the existing floodway will occur during the designated flood season (i.e., November 1 to April 15), and work will not begin until evaluation of upstream conditions indicate that inundation of the construction area is unlikely to occur.

b) A worker awareness training program will be conducted for construction crews before the start of construction activities and as needed when new personnel begin work on the project. The program will include a brief overview of sensitive fisheries and aquatic resources (including riparian habitat to be preserved) on the project site, measures to minimize impacts on those resources, and conditions of relevant regulatory permits.

c) Any in-water construction activities (though not currently anticipated) will be conducted during months when special-status fish species/sensitive life stages are least likely to be present or less susceptible to disturbance (e.g., July 1 to October 31).

d) All riparian vegetation that is not specified to be impacted within the grading area will be identified and fenced using orange construction fencing or similar materials. Sensitive habitat information will be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.

Timing: Before, during, and as needed after construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).

Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures BIO-2, GEO-1, and HYD-1 would reduce this impact to a less-than-significant level because SAFCA will provide worker awareness training, limit the timing of in-water construction activities, erect fencing to protect riparian vegetation, and implement grading and erosion control measures which will minimize adverse effects on special-status fish and water quality.

Northern Western Pond Turtle

Less-than-Significant Impact. The portion of the NEMDC/Steelhead Creek adjacent to the project site provides marginal-quality aquatic habitat for northern western pond turtle, and the project site could provide suitable nesting habitat and high-elevation upland areas for hibernation. However, if the species is present in the project area, it is unlikely to occur in large numbers, because of the proximity to urban development and high levels of human disturbance. Potential for direct injury or mortality of pond turtles is limited because construction activities would not occur during the hibernation period, when turtles are less mobile and more susceptible to direct impact, and it is unlikely an active nest would be present in areas subject to ground disturbance. Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to result in adverse effects on pond turtles. If adult pond turtles are present onsite during project activities, they would likely be able to move away from the disturbance area. In the unlikely event project activities result in death or injury of pond turtles, the number of individuals affected would likely be very low and would not have a substantial adverse effect on the species. Therefore, this impact would be less than significant, and no mitigation would be required.

Birds

Less than Significant with Mitigation Incorporated. The project site and vicinity provide suitable foraging and/or nesting habitat for seven special-status bird species—Swainson's hawk, white-tailed kite, western yellow-billed cuckoo, bank swallow, purple martin, least Bell's vireo, and Modesto song sparrow. Most of these species would only utilize the project site for foraging. Bank swallow and purple martin could forage over the site, if active nest colonies are present nearby; yellow-billed cuckoo and least Bell's vireo only have low potential to occur onsite and would only be present for brief periods during migration. Project activities are unlikely to substantially disrupt foraging activities of any of these species, because areas of similar habitat are present upstream and downstream along the American River corridor.

Swainson's hawks and white-tailed kites could use suitable nest trees along the perimeter of the project site, though neither species is known to have nested on or immediately adjacent to the site. Of the trees anticipated to be removed, only two are likely to be of a suitable size for nesting, particularly by Swainson's hawks, which tend to prefer larger trees. Therefore, there is little potential for direct removal of active nests. However, two Swainson's hawk nests have been documented in recent years within 0.5 mile of the project site. One white-tailed kite nest was documented nearby in 1974, and the species is likely to nest regularly in the area. Project activities would occur during the nesting season and could result in noise and visual disturbances that adversely affect active nests present nearby. Adverse effects of sufficient magnitude could result in nest abandonment, a reduction in the level of care provided by adults (e.g., duration of brooding, frequency of feeding), or forced fledging.

Modesto song sparrow could forage and nest in dense herbaceous and shrubby vegetation on the project site. Alternative habitat is present in the project vicinity, and habitat disruption during project implementation is unlikely to substantially disrupt this species. However, active song sparrow nests could be present in areas where vegetation would be cleared to facilitate culvert replacement, outlet channel excavation, basin grading, and planting.

Habitat disturbance associated with culvert maintenance and revegetation monitoring and maintenance is anticipated to be minor, relatively infrequent, and unlikely to result in disturbance levels that would cause nest failure. However, culvert replacement, floodplain grading, and revegetation activities could result in relatively high disturbance levels and subsequent failure of active nests of special-status birds. Therefore, this impact would be potentially significant.

Mitigation Measure BIO-3: Conduct Pre-construction Surveys and Minimize Disturbance and Potential Loss of Active Nests of Special-Status Birds.

SAFCA shall implement the following measures to minimize disturbance and potential loss of active nests of special-status birds.

a) Focused surveys for Swainson's hawk and other nesting raptors will be conducted by a qualified biologist before on-site project activities begin. To the extent feasible, surveys for Swainson's hawk will follow guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). A minimum of one survey will be conducted no more than 14 days before beginning project activities that are conducted during the nesting season (March 15–August 31). Surveys for Swainson's hawk nests will include all accessible areas of suitable nesting habitat located within 0.25 mile of areas subject to project disturbance, and surveys for other raptors will include accessible suitable nesting habitat within 500 feet of project disturbance.

b) Surveys for Modesto song sparrow will include suitable habitat east of Northgate Boulevard and within up to 200 feet of areas of project disturbance, depending on the disturbance level. Surveys will be conducted within 7 days before on-site project activities begin in a given area during the migratory bird nesting season (March 1–August 31).

c) If active nests are found, appropriate buffers will be established and maintained around the nest sites to avoid nest failure resulting from project activities. The appropriate size and shape of the buffers will be determined by a qualified biologist and may vary depending on the species, nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity will begin within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS?

Less than Significant with Mitigation Incorporated. Construction of the new culvert is anticipated to require removal of up to 53 trees of native species, primarily valley oak. Most of these were planted by SAFCA as part of the restoration program following borrow extraction. As a result, the majority are small, including an estimated 38 trees with a dbh of less than 6 inches and an estimated 13 trees with a dbh of 6 to 15 inches. One large valley oak with a 24-inch dbh and a multi-trunk tree with a total dbh of 37 inches would also be removed. Some of these trees are protected by City and County tree ordinances, and CDFW may take jurisdiction over some or all riparian vegetation on the project site under Section 1602 of the California Fish and Game Code. Additional protected trees and riparian vegetation are present immediately adjacent to areas where excavation, grading, and other project activities that could inadvertently damage trees would occur. Therefore, this impact is considered potentially significant.

Mitigation Measure BIO-4: Avoid and Minimize Disturbance of Riparian Vegetation and Implement Restoration Plan to Compensate for Tree Loss.

SAFCA shall implement the following measures to avoid and minimize disturbance of riparian vegetation and trees.

a) If canopy and/or root pruning, cabling, or other corrective measures for preserved trees are necessary, such measures will be conducted as specified by a Certified Arborist and will conform to the pruning standards of the International Society of Arboriculture.

b) Ground disturbance activity, equipment, and vehicles will not encroach within 1 foot of the drip line of trees to be preserved, to the extent feasible. The dripline area will be protected with high visibility fencing or tape before any ground disturbance or movement or storage of heavy equipment and other vehicles occurs. All fencing/tape will be removed following construction and before revegetation plantings are installed.

c) Excavating within a distance of half the drip line beyond the drip line will be avoided whenever practicable. If necessary, any authorized fill or excavation within this area will be supervised by a Certified Arborist.

d) To prevent root tearing and mangling by heavy equipment, hand digging will be conducted around roots in the vicinity of major trees to be preserved before pruning of roots greater than 2-inch diameter. Severed roots larger than 2 inches in diameter will be pruned or trimmed and covered with earth as soon as possible.

e) If construction activities other than excavation are required within the dripline of preserved trees, a 6-inch layer of mulch or shredded wood material will be laid on top of the soil to protect the soil and roots (3/4-inch plywood may be used if mulch is not feasible). Mulch and/or plywood will be removed after construction is complete.

f) Removal of protected trees and other riparian vegetation (e.g., shrubs) will be compensated by planting appropriate species as part of the revegetation component of the project. Replacement

plantings will be provided in accordance with City and County ordinances. Other riparian vegetation will be compensated at a 1:1 replacement ratio, based on the acreage removed. Revegetation efforts will be implemented as described in the restoration plan that has been prepared for the project. This will ensure adequate plantings of appropriate species are installed, maintained, and monitored to meet replacement requirements and compensate for removal of protected trees and other riparian vegetation.

Timing: Before, during, and after construction and revegetation activities

Responsibility: Sacramento Area Flood Control Agency

Implementation of Mitigation Measure BIO-4 would reduce the potentially significant impact to a less-than-significant level because it would avoid and minimize adverse effects on trees and other riparian vegetation to be preserved and would ensure habitat loss is appropriately compensated.

c) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Mitigation Incorporated. A total of 1.46 acres of seasonal wetlands anticipated to qualify for protection under Section 404 of the CWA are present in swales in the northern portion of the Site 18A basin. These wetlands would be directly altered by grading, ripping, and disking to improve swale drainage and soil conditions for revegetation plantings. Although activities would include cut and fill of wetlands, these areas would continue to provide wetland values and functions of equal or greater value, and no loss of wetland habitat would occur. Therefore, this impact would not have a substantial adverse effect on Federally protected wetlands.

The wetland delineation identified 0.11 acre of relatively permanent waters in the portion of NEMDC/Steelhead Creek adjacent to where culvert replacement and outlet channel grading would occur. These activities are not anticipated to result in any direct disturbance of jurisdictional waters, but there is potential for indirect adverse effects if construction activities result in inadvertent discharge of soil into NEMDC/Steelhead Creek. Therefore, this impact is considered potentially significant.

Mitigation Measure: Implement Mitigation Measure BIO-2 (Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek).

Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).

Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures BIO-2, GEO-1 and HYD-1 would reduce the potentially significant impact to a less-than-significant level because these measures would avoid and minimize indirect adverse effects on NEMDC/Steelhead Creek.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation Incorporated. A wildlife corridor is generally a topographical or landscape feature or movement area that connects two open-space habitat parcels that otherwise would be entirely fragmented or isolated from one another. A variety of fish and wildlife species are likely to move through NEMDC/Steelhead Creek and the American River corridors. Implementation of the proposed project is not anticipated to substantially interfere with movement of terrestrial species, because disturbance along NEMDC/Steelhead Creek would be limited to one side of the creek, allowing wildlife to continue to move along the northern bank, and wildlife movement along the American River would be able to continue through the extensive area between the project site and the river.

A small great blue heron (*Ardea herodias*) colony of five nests was documented in 2008 approximately 0.5 mile west of the project site. Because of the distance from the project site and high level of disturbance between the colony location and the project site (i.e., Northgate Boulevard), project activities would not result in disturbance of this nursery site. Based on the limited number of potential nest trees and relatively high disturbance levels on and adjacent to the project site, nest colonies are unlikely to occur close enough to the project site to be susceptible to project disturbance.

Overall, the project would improve fish movement, because it would reduce potential for migrating and rearing fish to become stranded in the basin when water levels recede. However, excavation, grading, and other construction activities could result in indirect adverse effects if they result in discharge of soil into the NEMDC/Steelhead Creek and disruption of fish movement. Therefore, potential impacts on fish movement are considered potentially significant.

> Mitigation Measure: Implement Mitigation Measure BIO-2 (Avoid and Minimize Disturbance of Special-status Fish in NEMDC/Steelhead Creek).
>
> Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).
>
> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures BIO-2, GEO-1, and HYD-1 would reduce the potentially significant impact to a less-than-significant level because these measures would avoid and minimize adverse effects on fish movement.

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

Less than Significant with Mitigation Incorporated. Trees protected by City and/or County policies and ordinances include certain native oaks and other large-diameter trees. A total of six valley oak trees with a dbh of 6 or greater that potentially qualify for protection under the County ordinance and one tree with a cumulative dbh of 37 inches that potentially qualifies for protection under the City ordinance would be removed to accommodate culvert replacement and outlet channel excavation. Additional trees could be pruned or otherwise damaged during project construction. These impacts could conflict with local tree preservation policies and ordinances. Habitat

loss is anticipated to be compensated by implementing the revegetation component of the project, but a restoration plan has not yet been finalized. Therefore, this impact would be potentially significant.

> Mitigation Measure: Implement Mitigation Measure BIO-4 (Avoid and Minimize Disturbance of Riparian Vegetation and Develop Restoration Plan to Compensate for Tree Loss).
>
> Mitigation Measure: Implement Mitigation Measure GEO-1 (Prepare and Implement a Grading and Erosion Control Plan).

Implementation of Mitigation Measures BIO-4, GEO-1, and HYD-1 would reduce the potentially significant impact to a less-than-significant level because they would avoid and minimize adverse effects on protected trees to be preserved and would compensate for loss of trees that would be removed.

f) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

No Impact. The proposed project would not conflict with any provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or State HCP. Several such plans have been adopted or are in development in the region, including the Natomas Basin Habitat Conservation Plan, but the project site is not within the coverage area for this or any such plan. Therefore, no conflict exists, and no impact would occur. No mitigation would be required.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Cultural resource investigations for the proposed project did not identify any cultural resources either within or near the project area. The project area was originally surveyed in its entirety in 1993 by Cultural Resources Unlimited (1993) when it was being evaluated for use as a borrow site for levee repair projects within Sacramento County. This 1993 study did not find any historic or prehistoric resources. The area was resurveyed in 2015 by AECOM archaeologists, also with negative results. The project area is previously disturbed, having been used as a borrow site to provide up to 230,000 cubic yards of earthen fill material for SAFCA's North Area Local Project (NALP) levee improvements. In addition, no subsurface resources were identified during excavation activities to install the existing culvert in 1996. Based on a records search at the North Central Information Center (NCIC); a sacred lands search conducted by the Native American Heritage Commission (NAHC); and the results of pedestrian surveys and consultation with the Native American community (currently ongoing), the project site and surrounding area within 0.25 mile of the project site do not contain any previously recorded cultural resources (e.g., prehistoric sites, historic sites, or isolated artifacts).

3.5.1 DISCUSSION

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

No Impact. A substantial adverse change in the significance of a historical resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the California Register of Historic Resources or in a local register or survey that meets the requirements of PRC Sections 5020.1(k) and 5024.1(g). However, there are no historic properties located within the study area. Therefore, no adverse impacts to significant historical resources would occur, and no mitigation would be required**.**

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

No Impact. The project site has been subject to extensive disruption in the past, including excavation and removal of substantial volumes of borrow material. Thus, any archaeological resources, which may have existed there at one time, have likely been removed. Project activities would involve grading and some excavation within the Site 18A basin to a depth of approximately 3 feet. Excavation of the existing culvert would be approximately 20 feet deep and would primarily disturb soil excavated and backfilled during the 1996 culvert construction. Based on the extensive previous disruption of the site and the shallow nature of proposed project grading and excavation activities, archaeological resources are unlikely to be encountered during construction of the proposed project. Therefore, the proposed project is not expected to cause a substantial adverse change in the significance of an archaeological resource pursuant to the State CEQA Guidelines California Code of Regulations Section 15064.5. There would be no impact, and no mitigation would be required.

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

Less-than-Significant Impact. Based on a review of the *Geologic Map of the Sacramento Quadrangle* (Wagner et al. 1987), project-related earthmoving activities would occur in Holocene-age Basin Deposits. By definition, to be considered a unique paleontological resource, a fossil must be more than 11,700 years old. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Therefore, this formation is considered to be of low paleontological sensitivity and project-related earthmoving activities would have a less-than-significant impact on unique paleontological resources. No mitigation would be required.

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

Less-than-Significant Impact. As described in item b) above, the project site has been extensively disturbed and a substantial volume of original material was previously removed from the site. Due to the level of past disturbance on-site, it is not anticipated that human remains, including those interred outside of formal cemeteries, would be encountered during earth removal or ground disturbance activities associated with the proposed project. Therefore, this impact would be less than significant, and no mitigation would be required**.**

3.6 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

3.6.1 ENVIRONMENTAL SETTING

The Site 18A project is located in the Sacramento Valley, which is part of the Great Valley Geomorphic Province. Specifically, the site is within the American River Parkway on the south floodplain of NEMDC/Steelhead Creek near the confluence of NEMDC/Steelhead Creek and Bannon Slough. The Great Valley province consists of an elongated structural trough, approximately 50 miles wide and 400 miles long, which has received continual alluvial deposition since the Jurassic period. The sediments in the Great Valley vary between 3 and 6 miles in thickness and were derived primarily from erosion of the Sierra Nevada to the east, with lesser material from the Coast Ranges to the west. Based on a review of the *Geologic Map of the Sacramento Quadrangle* (Wagner et al. 1987), project-related construction activities would take place in Holocene alluvium basin deposits. The Holocene basin deposits within Site 18A consist of unweathered gravel, sand and silt deposited by present-day channels (the American River and NEMDC/Steelhead Creek) which drain the Sierra Nevada Mountain range. These deposits lie within the first low terraces flanking present-day stream channels, and historically formed natural levees along the main stem of the Sacramento River.

The proposed project is not located in a seismically active area. The Sacramento Valley has experienced relatively low seismic activity in the past and does not contain any Alquist-Priolo Earthquake Fault Zones (California Geological Survey [CGS] 2012). Numerous earthquakes of magnitude (M) 5.0 or greater have occurred on regional faults in the Coast Ranges, approximately 38–55 miles west of downtown Sacramento. The nearest known active (Holocene or Historic) fault trace to the project study area is Dunnigan Hills, approximately 25 miles northwest of downtown Sacramento (Jennings and Bryant 2010a, 2010b). The nearest zoned faults are listed in **Table 3.6-1** below.

Table 3.6-1. Active Regional Faults

Fault Name	Approximate Distance from Downtown Sacramento (miles)	Regional Location	Maximum Moment Magnitude	Slip Rate (mm/yr)
Dunnigan Hills	25	Western Sacramento Valley	N/A	N/A
Great Valley Fault Zone Segment 3	26	Margin between Sacramento Valley and Coast Ranges	7.1	1.25
Great Valley Fault Zone Segment 4	26	Margin between Sacramento Valley and Coast Ranges	6.6	1.25
Great Valley Fault Zone Segment 5	37	Margin between Sacramento Valley and Coast Ranges	6.7	1.5
Hunting Creek-Berryessa	38	Coast Ranges	7.1	6.0
Green Valley-Concord	40	Coast Ranges	6.8	5.0
Greenville Fault Zone (includes Clayton and Marsh Creek sections)	45	Coast Ranges	7.0	2.0
Mount Diablo Blind Thrust	47	Coast Ranges	6.7	2.0
West Napa	48	Coast Ranges	6.7	1.0

Notes: mm/yr = millimeters per year; N/A = not available

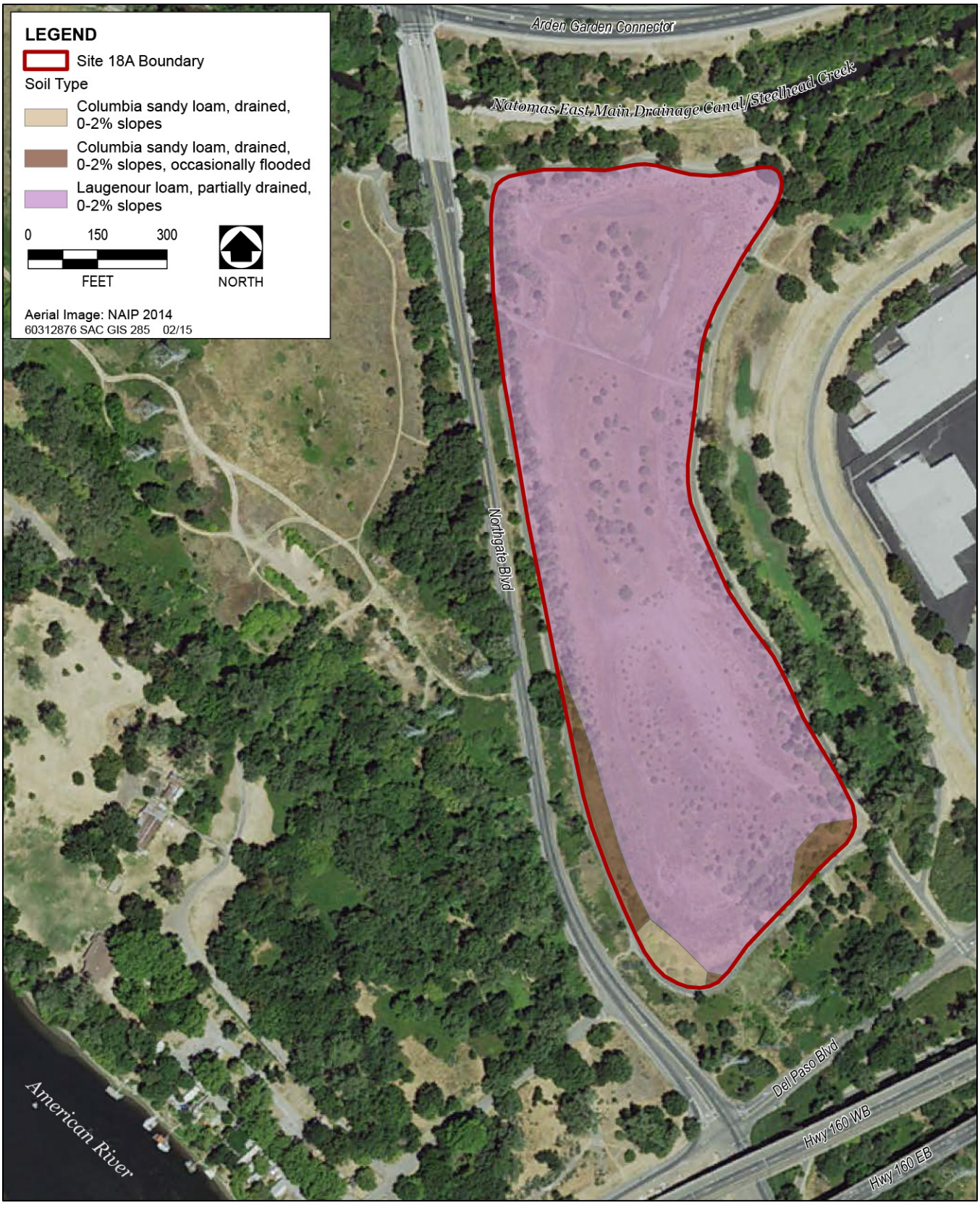
Sources: Jennings and Bryant 2010b, Working Group on California Earthquake Probabilities 2008:Supplemental Worksheets and Appendix A

As shown in **Exhibit 3.6-1**, the Laugenour loam soil series is the dominant map unit within the Site 18A project area, and the only soil type where construction activities would occur. The other soil type mapped within the project area is Columbia sandy-loam, which exists in the southern portion of the basin and is mostly associated with the bike trail berm. The relevant U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) soil characteristics are listed in **Table 3.6-2** (Soil Survey Staff 2014).

3.6.2 DISCUSSION

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

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42 [Bryant and Hart 2007].)



Source: NRCS SSURGO 2013, adapted by AECOM in 2015

Exhibit 3.6-1. Soil Types

Table 3.6-2. Soil Types and Characteristics					
Soil Type	Permeability[1]	Shrink-Swell Potential[2]	Wind Erobility Group[3]	Water Erosion Hazard[4]	Limitations for Shallow Excavations
Laugenour loam, partially-drained, 0-2 percent slopes	Moderate	Low	8	Slight	Moderate: wetness
Columbia sandy-loam, drained, 0-2 percent slopes	Moderately rapid	Low	7	Slight	Severe: cutbanks cave
Columbia sandy-loam, drained, 0-2 percent slopes, occasionally flooded	Moderately rapid	Low	7	Slight	Severe: cutbanks cave

Notes:

[1] Based on standard NRCS saturated hydraulic conductivity (Ksat) class limits; Ksat refers to the ease with which pores in a saturated soil transmit water.

[2] Based on percentage of linear extensibility. Shrink-swell potential ratings of "moderate" to "very high" can result in damage to buildings, roads, and other structures.

[3] The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

[4] Based on the erosion factor "Kw whole soil," which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

Source: NRCS 2013

Less-than-Significant Impact. Surface ground rupture along faults is generally limited to a linear zone a few yards wide. Since no active faults are mapped across the proposed project site, nor is the site located within an Alquist-Priolo Earthquake Fault Zone, surface fault rupture is unlikely (CGS 2012; Jennings and Bryant 2010a, 2010b). The nearest fault zoned under the Alquist-Priolo Act is the Great Valley Fault Zone Segment 3, approximately 23 miles away from Sacramento. Therefore, this impact would be less than significant, and no mitigation would be required.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. The intensity of ground shaking depends on the distance from the earthquake's epicenter to the site, the magnitude of the earthquake, soil conditions at the site, and the characteristics of the source. Design, construction, and maintenance of the new culvert must comply with the regulatory standards of the Central Valley Flood Protection Board; therefore, it is assumed that the design and construction of all bike trail berm modifications (including culvert replacement) would meet or exceed applicable design standards for static and dynamic stability, seismic ground shaking, liquefaction, subsidence, and seepage. Furthermore, the proposed project is not located in a seismically active area. For these reasons, project impacts would be less than significant, and no mitigation would be required.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Soil liquefaction poses a foundation hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Factors determining the liquefaction potential are soil type and consistency, the level and duration of seismic ground motions, and the depth to groundwater. Loose sands, peat deposits, and younger Holocene-age sediments are susceptible to

liquefaction, while older, well consolidated deposits of clays and silts in freshwater environments are generally stable under the influence of seismic ground shaking. Since the proposed project is not located in a seismically active area and construction activities would occur during the dry season, the liquefaction potential is considered to be low, and this impact would be less than significant. Therefore, no mitigation would be required

iv) Landslides?

Less-than-Significant Impact. A review of the CGS landslide map index (CGS 2012) indicates that no landslide hazard maps have been prepared for the Sacramento area. Because the proposed project would be located within a low gradient, relatively flat, area the potential for exposure to adverse effects from landslides would be less than significant with implementation of the proposed project. Therefore, no mitigation would be required.

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

Less than Significant with Mitigation Incorporated. A review of NRCS (2013) soil survey data indicates that soils within the project site are slightly susceptible to erosion by water and wind. Project implementation would involve construction activities, including excavation and grading for culvert replacement and modification of the floodplain swales. These activities would result in the temporary disturbance of soil and could potentially expose disturbed areas to summer wind and winter storm events. Soil disturbance during the summer as a result of construction activities could result in soil loss and loss of topsoil because of wind (aeolian) erosion. In addition, rain of sufficient intensity could dislodge soil particles from the soil surface. If the storm is large enough to generate runoff, localized erosion could occur. Therefore, impacts associated with construction-related erosion are considered potentially significant.

Mitigation Measure GEO-1: Prepare and Implement a Grading and Erosion Control Plan.

a) Before earthmoving activities commence, SAFCA shall prepare and implement a grading and erosion control plan. The grading and erosion control plan will be prepared and implemented before on-site grading activities begin. The plan will be consistent with the State's National Pollutant Discharge Elimination System permit, and will include site-specific grading associated with culvert replacement and restoration activities.

b) The aforementioned plan will include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures; a description of measures designed to control dust and stabilize disturbed soils within the construction site; and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include the use of berms, straw cover, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices).

Implementation of Mitigation Measures GEO-1 and HYD-1 would reduce the impact from construction-related erosion to a less-than-significant level.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. The potential hazards associated with liquefaction and landslides are addressed in impacts iii) and iv) above. As indicated in **Table 3.6-1**, the Laugenour soil series has a low shrink-swell potential and excavation depth may be moderately limited due to wetness in some areas. However, groundwater monitoring wells in the vicinity of the Site 18A basin have reported that groundwater in the basin is typically greater than 40 feet below ground surface (bgs) (also see Section 3.9, "Hydrology and Water Quality," for a discussion on groundwater levels). Furthermore, during geotechnical studies in the basin conducted in 1995, no groundwater was encountered in any of the12 test pits that were dug throughout the site. These test pits ranged from 12.5 to 18.5 feet in depth from the original ground surface (i.e. the grade of the bike trail berm around the site).

Columbia sandy-loam also has low shrink-swell potential and contains less clay material than the Laugenour loam. Excavation depth can be severely limited because the Columbia sandy-loam tends to collapse. However, this soil is not present in the vicinity of the culvert replacement, and only exists along the vegetated bike trail berm in the southern portion of the basin. Since construction of the replacement culvert would occur solely in Laugenour loam during the dry months, soil shrink-swell potential is low, and groundwater levels are not shallow enough to interfere with construction activities, this impact would be **less than significant. Therefore**, no mitigation would be required.

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

Less-than-Significant Impact. Expansive soils shrink and swell as a result of change in moisture content. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. Based on soil survey data from the USDA NRCS (Soil Survey Staff 2014), soils within the project site have a low shrink-swell potential and do not contain highly expansive clay minerals (see **Table 3.6-1**). Therefore, this impact would be less than significant, and no mitigation would be required.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed project would entail replacement of a culvert and restoration of an existing wetland area. If restroom facilities are needed during construction, portable (non-discharging) restrooms would be used. No septic systems or alternative wastewater disposal systems would be required for the proposed project. Thus, no impact would occur, and no mitigation would be required.

3.7 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.7.1 ENVIRONMENTAL SETTING

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation (thermal heat) is absorbed by GHGs in the atmosphere; as a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth.

GHGs are present in the atmosphere naturally, released by natural sources, and formed from secondary reactions taking place in the atmosphere. GHG emissions associated with human activities are highly likely responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (Intergovernmental Panel on Climate Change 2013).

In November 2014, SMAQMD adopted GHG thresholds of significance for construction and operational emissions (SMAQMD 2014). These thresholds of significance, along with SMAQMD-recommended guidance for evaluating GHG emissions, are used in this analysis to evaluate the proposed project's GHG emissions.

3.7.2 DISCUSSION

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. Implementing the proposed project would generate temporary construction-related GHG emissions that would cease following completion of the proposed project. Construction emissions would be generated by vehicle engine exhaust from heavy-duty construction equipment, haul trips, and construction worker trips. The total duration of the construction project is temporary and short-term and expected to last approximately 2 months. As described in Section 3.3, "Air Quality," construction-related GHG emissions were modeled using CalEEMod and EMFAC2011. **Table 3.7-1** presents the proposed project's total construction-related GHG emissions.

Table 3.7-1. Proposed Project Unmitigated GHG Emissions	
Construction Phase	Annual MT CO_2e
Temporary Bike Trail Realignment	
Installation	3.79
Removal	0.59
Culvert and Approach Channel Construction	
Excavation	28.57
Install Culvert and Rip-Rap Replacement	31.43
Backfill and Grading	8.95
Habitat Enhancement	
Swale-Grading	1.55
Deep Ripping and Soil Improvements	3.41
Seeding Native Grass Mix	0.92
Installation of Riparian Plantings	2.31
Irrigation	0.00
Total Construction Emissions	**81.53**
SMAQMD Threshold	**1,100**

Note: MT CO_2e = metric tons carbon dioxide equivalent
Source: MGE Engineers 2015, compiled and modeling by AECOM 2015

As described above, SMAQMD has established quantitative significance thresholds for evaluating GHG emissions associated with construction projects in CEQA analyses. SMAQMD has identified construction projects that emit 1,100 MT CO_2e per year or greater to be significant (SMAQMD 2014).

As shown above in **Table 3.7-1**, the proposed project's construction-related GHG emissions resulting from the temporary bike trail realignment, culvert and approach channel construction, and habitat enhancement would not exceed SMAQMD's construction threshold of significance. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the physical environment. In the long term, woody species used in site revegetation would serve as a carbon sink. Therefore, the proposed project's construction-related emissions would have a less–than-significant impact, and no mitigation would be required.

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

Less-than-Significant Impact. Although implementing the proposed project would cause temporary construction-related GHG emissions, the project's intent, purpose, and function align with the goals of the Assembly Bill (AB) 32 Scoping Plan to protect against the detrimental effects of climate change. ARB's Scoping Plan includes measures that would indirectly address GHG emissions from construction activities, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. Policies formulated under the mandate of AB 32 that apply to construction-related activity, either directly or indirectly, are assumed to be implemented Statewide and would affect the

proposed project should those policies be implemented before construction begins. The proposed project's construction emissions would comply with any mandate or standards set forth by the Scoping Plan.

Neither SAFCA nor any other agency with jurisdiction over this project has adopted a climate change or GHG reduction plan with which the proposed project would conflict. As discussed previously, the proposed project would not emit construction-related GHGs at a level that would cause a significant impact on the environment and would not involve long-term operational emissions that would generate substantial GHG emissions following completion of the proposed project. Accordingly, the proposed project would not be expected to substantially conflict with existing California legislation and GHG reduction plans adopted to reduce Statewide GHG emissions. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions. This impact would be less than significant, and no mitigation would be required.

3.8 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

3.8.1 ENVIRONMENTAL SETTING

Site 18A consists of approximately 17 acres of land within the American River Parkway (**Exhibit 2-1**). As described in Section 2.1, "Project Location and Background," Site 18A was previously used as a borrow site in 1996. Following the 1996 excavation, the area was modified to function as a backwater floodplain basin for the Sacramento and American Rivers and restored to provide wildlife habitat. The site is periodically flooded when high water stages on the American and Sacramento Rivers cause water to backup into the NEMDC/Steelhead Creek then onto the project site via a culvert connecting the site to the creek or by overtopping the bike trail berm around the perimeter of the basin. Since being restored, the project site has been periodically monitored and managed by SAFCA as a habitat mitigation site.

The project site is located upstream from Discovery Park, immediately south of the Arden-Garden Connector and NEMDC/Steelhead Creek, and directly east of Northgate Boulevard. A paved American River Parkway bike trail extends along the top of a berm that surrounds and defines the project site. Land in the vicinity of the project site to the north, south, and west supports recreation and residential land uses. Homeless encampments, common occurrences within the American River Parkway, have also been observed within the vicinity of the project. To the east of the project site are a flood control levee and an industrial/commercial building complex that includes an indoor soccer arena, paper recycling facility, and an auto repair shop.

California Highway Patrol (CHP) Academy Airport, the closest airport to the site, is located approximately 4.5 miles to the west. The nearest educational facility, SETA Head Start, is located approximately 0.35 mile to the east of Site 18A.

HAZARDOUS MATERIALS

According to a 2004 habitat mitigation and monitoring report for the project site, the herbicide Garlon 4 (triclopyr) has been previously used to control herbaceous weeds on the site. The 2004 report also suggests that the use of Garlon 4 was discontinued in 2001 because of adverse impacts to native restoration plantings from herbicide drift (SAFCA 2005). Garlon 4 is classified as a hazardous chemical under Occupational Safety and Health Administration (OSHA) Hazard Communication Standard 29 Code of Federal Regulations 1910.12; however, it is not considered to be a human carcinogen, or to cause birth defects or adverse effects on the immune or nervous system (Dow AgroSciences 2002; 2006). Triclopyr, the active component in Garlon 4, is a common herbicide used to control invasive weeds and vegetation. The effect of triclopyr on human health and the environment is dependent upon how much triclopyr is present and the frequency of exposure. Triclopyr rapidly breaks down into non-hazardous components in about 90 days (Dow AgroSciences 2006). Therefore, residual triclopyr is not expected to occur at the site because the pesticide was last applied to the site in 2001.

AECOM searched several publicly available databases maintained under PRC Section 65962.5 (i.e., the “Cortese List”) to determine whether any known hazardous materials are present either within or immediately adjacent to the project area.

The State Water Resources Control Board (SWRCB) maintains the Geotracker database, an information management system for groundwater. Data on leaking underground storage tanks and other types of soil and groundwater contamination, along with associated cleanup activities, are part of the information that SWRCB must maintain under PRC Section 65962.5. A search of the Geotracker database indicated that Mells Cargo Supply, a leaking underground storage tank (LUST) cleanup site located at 1940 Railroad Drive, is approximately 1,000 feet east of the project site (SWRCB 2015). A release of gasoline to soil and water on the Mells Cargo Supply site was reported. Remediation of contaminated soil has been completed. An ozone injection system using six injection wells is planned for installation on the northeast side of the existing building for future treatment of petroleum hydrocarbons in groundwater. The full extent of impacts to groundwater have not yet been delineated; however, the plume appears to have migrated offsite in the direction of groundwater flow (north-northeast)—away from Site 18A (SWRCB 2014).

The Hazardous Waste and Substances Site List (the “EnviroStor” database) is maintained by the California Department of Toxic Substances Control (DTSC) as part of the requirements of PRC Section 65962.5. A search of the EnviroStor database indicated that there are no additional open, active cases of hazardous waste and substances sites either within or immediately adjacent to the project area (DTSC 2015).

A search of the EPA's Envirofacts database (which includes records maintained under the Comprehensive Environmental Response, Compensation, and Liability Act) indicated that there are no additional known open, active cases of hazardous material contamination either within or immediately adjacent to the project area (EPA 2015).

FIRE HAZARD

Wildland fires represent a substantial threat in California, particularly during the hot, dry summer months in areas where topography, land use and access, and heavy fuel loading contribute to hazardous conditions. Wildland fires may be started by natural processes, primarily lightning, or by human activities. The California Department of Forestry and Fire Protection (CAL FIRE) has established a fire hazard severity classification system to assess the potential for wildland fires. The zones depicted on CAL FIRE maps take into account the potential fire intensity and speed, production and spread of embers, fuel loading, topography, and climate (e.g., temperature and the potential for strong winds). The project site is located within a Local Responsibility Area (LRA), for which CAL FIRE is required to delineate two hazard severity zones: very high, and non-very high fire hazard severity zones. The CAL FIRE maps show that the project site is located in a non-very high fire hazard severity zone (CAL FIRE 2008).

Although the project area is not currently designated within a very high hazard severity zone, periodic wildfires occur within the American River Parkway (American River Parkway 2008). In 2014, there were at least 24 fires within the parkway, including one located along the eastern side of Site 18A, that collectively burned more than 200 acres. The cause of the fires was due to very dry conditions and human activities, including outdoor cooking and arson (Sacramento Bee 2014). Various policies addressing public safety, firebreaks, vegetation management, and prohibited activities have been established as part of the American River Parkway Plan to help manage the risk of fires within the American River Parkway (American River Parkway 2008). See Section 3.14, "Public Services," for detailed information about fire protection services provided by the City of Sacramento.

EMERGENCY VEHICLE ACCESS

Emergency vehicle access is provided throughout the American River Parkway via parking areas, service roads, levee crowns, bicycle trails, and pedestrian paths (American River Parkway 2008).

3.8.2 DISCUSSION

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

Less-than-Significant Impact with Mitigation Incorporated. Construction of the proposed project would involve the incidental transport and use of common construction materials such as oils, lubricants, and fuels, as well as specific materials for culvert replacement work, such as concrete. Construction activities would occur within the American River Parkway adjacent to sensitive habitats including NEMDC/Steelhead Creek. DTSC has primary regulatory authority for enforcing hazardous materials regulations. State hazardous waste regulations are contained primarily in Title 22 of the California Code of Regulations. The California Occupational Health and Safety Administration has developed rules and regulations regarding worker safety around hazardous and toxic substances. However, handling and use of hazardous materials during construction in areas with high recreational

use and sensitive habitats could result in the exposure of workers, the recreating public, and the environment to hazardous materials. Therefore, this impact during construction would be potentially significant.

Following construction, weeds may be managed or suppressed with selected systemic herbicides (depending on field conditions and season). As discussed in the project description, any herbicides would be applied according to the label, in accordance with applicable Federal and State laws, including those pertaining to herbicide application in or near wetlands. Because herbicides would only be used periodically with limited application, and herbicides would be applied in compliance with applicable regulations, the potential to expose workers or nearby users of the American River Parkway to herbicides would be less than significant.

> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

With implementation of Mitigation Measure HYD-1, any potentially significant impacts from exposure to hazardous materials during construction would be reduced to a less-than-significant level because a storm water pollution prevention plan (SWPPP) or storm water management plan (SWMP) that would (1) include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, (2) identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent, and materials available to clean up, hazardous material and waste spills, and (3) identify emergency procedures for responding to spills, would be prepared and implemented.

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

Less-than-Significant Impact with Mitigation Incorporated. The volume of hazardous materials used or stored onsite during construction would be relatively low. The herbicide, Garlon 4, has been reportedly used on the property in the past. Because the herbicide rapidly breaks down in the environment, the presence of hazardous components in soils or on vegetation with the potential to be released during construction is also highly unlikely. Furthermore, Federal, State, and local hazardous materials regulations have been specifically designed to reduce the risk of accidental spills to the maximum extent practicable. However, handling and use of hazardous materials during construction in areas with high recreational use and sensitive habitats could result in the exposure of workers, the recreating public, and the environment to hazardous materials. Therefore, this impact during construction would be potentially significant.

As described in 3.8.2(a) above, operations and maintenance activities would include the use of herbicides to control weeds on the project site. However, herbicides would not be stored at the site and would be used only periodically with limited application in accordance with applicable regulations. Therefore, the impact related to herbicide use during maintenance activities would be less than significant.

> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

With implementation of Mitigation Measure HYD-1, any potentially significant impacts from exposure to hazardous materials as a result of accidental release and/or spills during construction would be reduced to a less-than-significant level.

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

No Impact. There are no existing or proposed schools within one-quarter mile of the project area. Thus, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact. A search of publicly available databases maintained by SWRCB (2015), DTSC (2015), and the EPA (2015) indicated that there is one LUST site, Mells Cargo Supply, approximately 1,000 feet east of the project site. Groundwater at the site has been impacted by petroleum hydrocarbons and a remediation system is planned for installation. The depth to water at the site and the full extent of impacts to groundwater have not yet been delineated; however, the plume appears to have migrated offsite in the direction of groundwater flow (north-northeast) —away from Site 18A (SWRCB 2014). Based on a review of available information, the distance and the upstream location of Site 18A from the LUST site, groundwater beneath Site 18A or surface water within NEMDC/Steelhead Creek would not be affected. Therefore, this impact would be less than significant, and no mitigation would be required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact. There are no public or private airports within 2 miles of the project area. Thus, no impact would occur, and no mitigation would be required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. As discussed in item e) above, **t**here are no public or private airports within 2 miles of the project area. There would be no impact, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed construction of the project would entail a small number of temporary and short-term commute trips on local or regional roadways by construction workers to and from the project site. The bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would be closed to the public during construction. The bike trail along the south and west sides of the embankment and approximately 280 feet of bike trail that extends from the southeast corner of the embankment around Site 18A to the crossing at Del Paso Boulevard would remain open to the public. However, the 280 feet of bike trail would also be used by haul trucks entering and exiting Site 18A during construction. Project operation would not entail additional commute trips on local or regional roadways, nor would it alter any designated emergency access routes. Given the small number of trips on local or regional roadways and the establishment of an alternate bike path route during project construction, any impacts to emergency response plans, routes or vehicle access are considered to be less than significant. Therefore, no mitigation would be required.

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less-than-Significant Impact with Mitigation Incorporated. Although CAL FIRE (2008) has determined that the areas where project-related activities would occur are not within a very high fire hazard severity zone, fires within the American River Parkway are known to occur in grasslands, brush, and areas with dense thickets of non-native vegetation and trees. Most of the project-related construction work would occur during the fall months when hot and dry conditions would enable rapid spread of fires. Construction equipment can emit sparks that could ignite fires, thereby exposing people or structures to a significant risk of loss, injury, or death. Therefore, construction activities would have a potentially significant impact.

Mitigation Measure HAZ-1: Prepare and Implement a Construction Fire Prevention Plan.

A fire prevention plan will be prepared and implemented by SAFCA or prepared by the construction contractor for review and approval by SAFCA in coordination with the appropriate emergency service and/or fire suppression agencies of the applicable local or State jurisdictions before the start of any construction activities. The plan will describe fire prevention and response methods, including fire precautions, requirements for spark arrestors on equipment, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. When heavy equipment is used for construction during the dry season, a water truck shall be maintained on the construction site. Materials and equipment required for implementation of the plan will be available on the construction site. Training will be provided to all construction personnel regarding fire safety, and all personnel will be made familiar with the contents of the plan before the start of construction activities.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Implementation of Mitigation Measure HAZ-1 would reduce the potentially significant impact associated with creation of wildland fire hazards during project construction to a less-than-significant level because a fire prevention plan would be prepared and implemented.

Implementation of the proposed project would involve enhancing existing riparian and willow scrub vegetation on the project site with additional plants, which would result in a small increase in the density of vegetation at specific locations on the project site. Maintenance activities, including plant irrigation, weed control (mowing, hand weeding, and herbicide application), and debris removal would be performed for the first five years as part of the project. The site would also be managed in accordance with polices in the American River Parkway Plan. Because the project site would be maintained for the first 5 years and then managed in accordance with policies in the American River Parkway Plan that address fire risk and vegetation management, the small addition of vegetation is not considered to substantially increase fire risk. Thus, the impact associated with project operation would be less-than-significant.

3.9 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 ENVIRONMENTAL SETTING

SURFACE WATER

Site 18A is located within the American River Parkway and is just upstream of the NEMDC/Steelhead Creek confluence with the Sacramento River near the Discovery Park boat launch facility (see **Exhibit 2-1**). The project site lies adjacent to the NEMDC/Steelhead Creek south bank, and consists of seasonal wetland and seasonally flooded riparian habitat. In 1996, approximately 230,000 cubic yards of soil was removed from Site 18A for

constructing levee embankments as part of the NALP levee improvements. The area was graded and planted by SAFCA to support riparian floodplain and seasonal wetland habitat. Water surface elevations greater than 10 feet in the Sacramento and Lower American River cause NEMDC/Steelhead Creek to backup and overflow into Site 18A through the culvert that connects NEMDC/Steelhead Creek to the Site 18A basin, and at higher stages, overtopping the surrounding low berm/bike trail embankment surrounding the Site 18A basin occurs. When flooded, juvenile Chinook salmon, steelhead, and other fishes have been known to use Site 18A as foraging and rearing habitat.

NEMDC/Steelhead Creek is a human-made, leveed drainage canal that extends for approximately 13 miles from Sankey Road in the north southward to its confluence with the Sacramento River (**Exhibit 3.9-1**). Along with the Pleasant Grove Creek Canal (PGCC) West Levee, the NEMDC/Steelhead Creek West Levee forms the easterly boundary of the Natomas Basin. The NEMDC/Steelhead Creek East Levee begins approximately 700 feet north of Main Avenue and extends southward to its connection to the American River North Levee near State Route 160. The NEMDC/Steelhead Creek East Levee protects the Robla and North Sacramento communities.

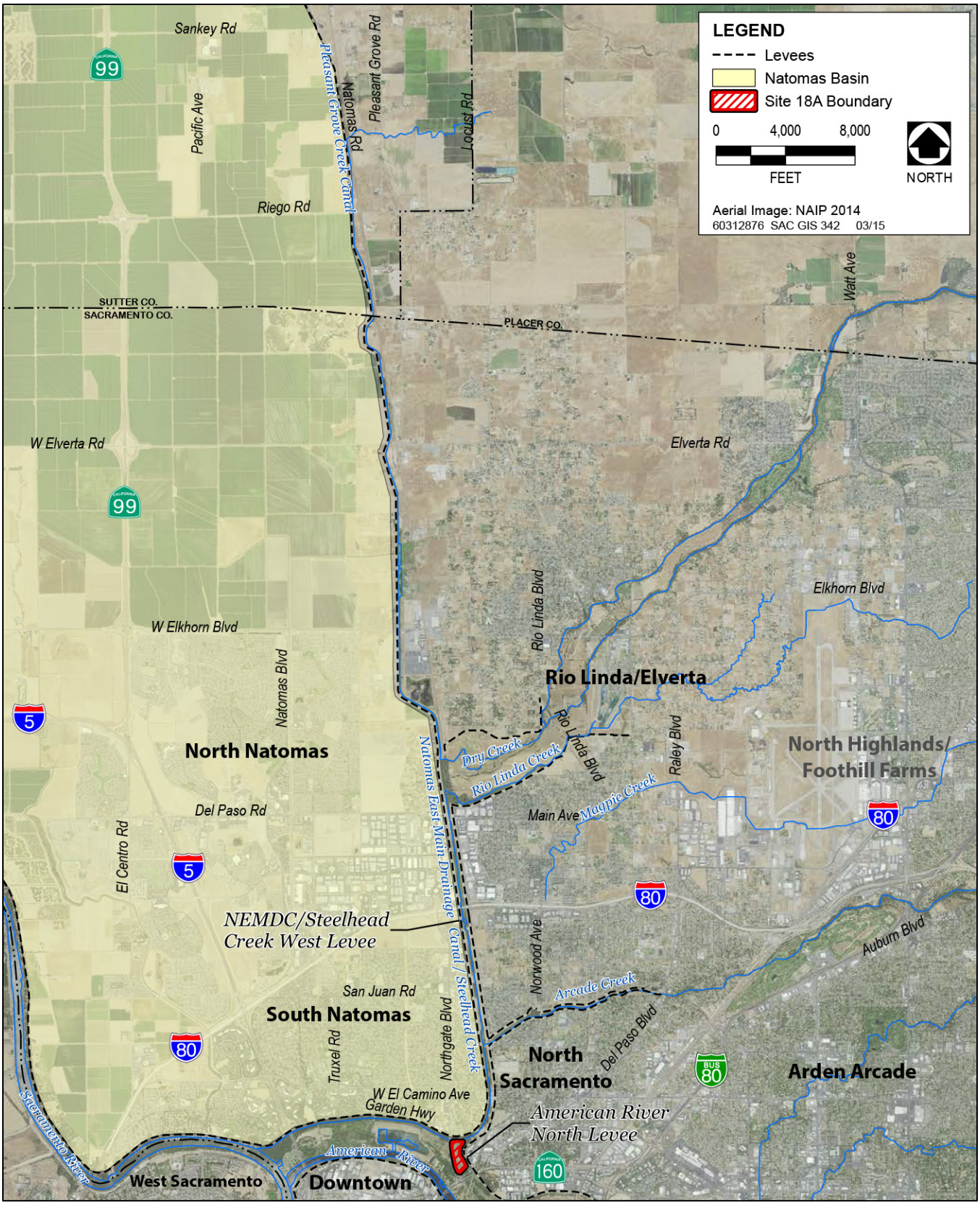
The watershed of NEMDC/Steelhead Creek comprises approximately 180 square miles of land in the greater Sacramento metropolitan area, which includes significant portions of the Natomas area, northeastern Sacramento County, southern Placer County, and a small portion of Sutter County (see **Exhibit 3.9-1**). NEMDC/Steelhead Creek receives runoff from agricultural areas of northern Sacramento County and a large, rapidly urbanizing metropolitan area, including Dry, Arcade, Robla and Magpie Creeks; and a large portion of the western Rio Linda and Elverta areas north of the confluence with Dry Creek up to Sankey Road. NEMDC/Steelhead Creek currently supports a diverse array of habitat types, including grasslands, seasonal wetlands, riparian forest, willow scrub, and valley oak woodland, as well as large stands of invasive shrubs (red sesbania) and floating aquatic weeds (water primrose and hyacinth).

The NEMDC/Steelhead Creek Watershed has a Mediterranean climate, with hot, dry summers and cool, wet winters. The majority of the precipitation falls between November and April. Mean annual rainfall for the Sacramento Metropolitan Area is roughly 21 inches.

Water quality in the Sacramento River watershed is regulated through the Central Valley RWQCB, *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan) (Central Valley RWQCB 2011). The Basin Plan sets regulatory limits on specific water quality parameters in the region, and provides guidance for particular land uses and their input to surface water quality; such as industrial discharge, wastewater treatment plants, agriculture and recreation. In addition, the Central Valley RWQCB reviews and approves National Pollutant Discharge Elimination System (NPDES) permits and CWA Section 401 water quality certifications, as applicable, for construction activities and project-related impacts to water quality.

GROUNDWATER

Site 18A is located in the North American Groundwater Subbasin, as defined in California Department of Water Resources (DWR) Bulletin 118 (DWR 2003). The North American Subbasin is approximately 548 square miles and lies within the eastern central portion of the Sacramento Valley Groundwater Basin. The western portion of the subbasin is a relatively flat floodway for the Bear, Feather, Sacramento and American Rivers, and several small east side tributaries. The general direction of surface drainage is west-southwest at an average grade of about 5 percent, and the general direction of groundwater flow is north-northeast.



Source: Adapted by AECOM in 2015

Exhibit 3.9-1. Lands Within and Near the North Sacramento NEMDC/Steelhead Creek Watershed

Two groundwater wells exist in the vicinity of the project area, which are primarily used for irrigation. The wells are located adjacent to each other, and approximately 2.5 miles directly east of Site 18A, near Erikson Industrial Park and Interstate Business 80 (Capital City Freeway). As of March 2014 water levels in the wells were measured to be approximately 62 and 52 feet bgs. Since 2000 the water levels in these wells have ranged from approximately 63 to 84 bgs and 49 to 72 bgs, respectively (DWR 2014).

3.9.2 DISCUSSION

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

Less-than-Significant Impact with Mitigation Incorporated. Both direct and indirect discharges associated with ground-disturbing construction activities for the proposed project could cause surface water to become contaminated by soil or construction-related substances. The proposed activities include grading and earthmoving associated with culvert replacement and wetland restoration within Site 18A. These activities could temporarily impair water quality should disturbed material, petroleum products, or construction-related wastes be discharged into NEMDC/Steelhead Creek, or onto the ground where they could be carried into receiving waters. Accidental spills of construction-related substances such as oils and fuels could contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on several factors: the tendency toward erosion of soil types encountered, soil chemistry, types of construction practices, extent of the disturbed area, duration of construction activities, proximity to receiving water bodies, and sensitivity of those water bodies to construction-related contaminants.

Although soils that could be affected by project activities only have a slight water erosion hazard and a low susceptibility to wind erosion (see **Table 3.6-2** in Section 3.6, "Geology and Soils"), bare soil would be exposed to wind and water erosion during site grading and excavation activities. If precautions are not taken to contain sediments, construction activities could produce sediment laden storm runoff that would degrade water quality. These activities could result in the exposure of soil or construction materials to rain or wind, resulting in short-term adverse water quality impacts. Construction activities would take place during the dry season so that dewatering of the site would not be required and impacts to water quality from erosion and stormwater runoff caused by flooding within Site 18A in response to high water levels in NEMDC/Steelhead Creek and ponding from storm events would be unlikely.

Restoration-related grading activities would occur primarily in the floodplain of NEMDC/Steelhead Creek, which is fairly isolated as it is surrounded by berms that provide a foundation for the American River Parkway bike trail. Deep ripping and swale grading for restoration, and grading for and replacement of the culvert that connects the floodplain to NEMDC/Steelhead Creek could potentially impact water quality should sediment, petroleum products or other construction waste enter the creek or penetrate into the groundwater. Therefore, this impact would be potentially significant.

> Mitigation Measure HYD-1: Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices.
>
> During the development of improvement plans, SAFCA will consult with the Central Valley RWQCB and Sacramento County. The purpose of the consultation will be to acquire the regulatory approvals necessary to obtain a CWA Section 401 Water Quality Certification, and any other necessary waivers under the Porter-Cologne Water Quality Control Act.

SAFCA will also prepare and implement the appropriate SWPPP or SWMP to prevent and control pollution and to minimize and control runoff and erosion. The SWPPP or SWMP will identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the BMPs that will be employed to control pollutant discharge. Construction techniques that will be identified and implemented to reduce the potential for runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP or SWMP will include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/ wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking and dust generation by construction equipment. No disturbance of surfaces will occur between October 15 and April 15 without erosion control measures in place.

The SWPPP or SWMP will also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and will identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP or SWMP will also identify emergency procedures for responding to spills.

The BMPs presented in either document shall be clearly identified and maintained in good working condition, with sufficient backup stock on-site during all site work and construction activities. The construction contractor will retain a copy of the approved SWPPP or SWMP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the Central Valley RWQCB, if necessary.

Timing: Before and during construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Implementing Mitigation Measure HYD-1 would reduce the potentially significant impact related to violation of water quality standards or waste discharge requirements to a less-than-significant level because a SWPPP or SWMP would be prepared and implemented consistent with permit requirements that would prevent and control pollution and minimize and control runoff and erosion.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Less-than-Significant Impact. The proposed project would not require the use of groundwater or substantially interfere with groundwater recharge. The proposed project is located within an area where groundwater is of a moderate depth (greater than 40 feet) and soils are low to moderately permeable. It may be an area of recharge on a seasonal basis when the basin is flooded for extended periods of time during the wet season. However, surface hydrology would continue to be controlled by the water surface elevation of NEMDC/Steelhead Creek. The project would involve ripping to a depth of approximately 3 feet in the weakly cemented soil layers in the bottom

of the basin in order to improve soil conditions for the revegetation and habitat enhancement efforts, but the shallow restrictive layer is up to 6 feet thick and exists between the soil surface and groundwater reserves. Project-related changes would have little to no effect on groundwater infiltration. No new development of impermeable surfaces (such as pavement or buildings) is proposed. Project features would not interfere with the overall movement of groundwater to and from NEMDC/Steelhead Creek or the American River. Therefore, groundwater supplies and groundwater recharge capability would likely not be affected, and the impact would be less than significant. No mitigation would be required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

Less-than-Significant Impact. The channel of NEMDC/Steelhead Creek would not be altered or otherwise impacted during construction activities, or as a result of the existence of the new culvert. The new arch culvert would be installed in the same location as the existing culvert. Flooding and receding of waters into and out of the basin is and would continue to be controlled by the water surface elevation of NEMDC/Steelhead Creek.

Cut-and-fill grading of the existing channels within Site 18A during habitat enhancement efforts would improve drainage from the site in order to prevent fish stranding by minimizing ponding in isolated areas as floodwaters recede from the site, and by improving the overall connectivity of the floodplain with NEMDC/Steelhead Creek. Attraction flows to facilitate fish migration would be provided by grading the basin swales and creating channels with a flow line to direct flows to the culvert and direct fish out of the basin as the stream flows recede. Connectivity and drainage would be improved by slightly lowering (less than 1 foot) the culvert's invert elevations to prevent ponding, and fish stranding, at the inverts. The invert elevation is approximately 10.9 feet on the basin side and 9.7 feet on the NEMDC/Steelhead Creek side of the existing culvert. Whereas, the invert elevation of the new culvert would be approximately 10.0 feet on the basin side and approximately 9.0 feet on the NEMDC/Steelhead Creek side with a flow line along the bottom of the culvert shaped at a 0.5 percent gradient toward the NEMDC/Steelhead Creek to discourage ponding of water in the Site 18A basin.

The proposed new culvert would also be larger (wider at the base and taller) and have a larger capacity than the existing culvert. Although the pattern of drainage into NEMDC/Steelhead Creek would not be substantially altered, the Site 18A basin would begin to flood at slightly lower NEMDC/Steelhead Creek water surface elevations, and the larger culvert would convey water at a higher volume of flow. Conversely, water would recede more quickly, controlled by the NEMDC/Steelhead Creek water surface elevation rather than the outlet capacity of the existing culvert. Therefore, discharge into and out of the basin during flooding and recession of flood waters would be more responsive to changes in the NEMDC/Steelhead Creek water surface elevation. Discharge would be directly related to the rate that the water surface elevation in NEMDC/Steelhead Creek raises and lowers. However, the low gradient slope (0.5 percent) of the culvert, its greater cross-sectional area, and an increase in roughness provided by the riprapped culvert bottom would reduce high velocity flows from scouring and eroding the basin channels, culvert inverts, and NEMDC/Steelhead Creek banks.

Because the velocity of drainage flow from Site 18A into NEMDC/Steelhead Creek would not increase, it would not result in scour, sheet flow, or other types of erosion. Construction of the proposed project would not alter the existing drainage pattern other than improving the responsiveness to NEMDC/Steelhead Creek. It would improve the topographical gradient and reduce potential fish stranding areas. Since the drainage pattern would remain the same, and the proposed project would not alter the course of a stream or river in a manner that would result in

substantial erosion or siltation, on- or off-site, this impact would be less than significant. No mitigation would be required.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

Less-than-Significant Impact. See discussion in c) above. The inverts of the new arch culvert would be no more than 1 foot lower than their current elevation. The invert elevation on the basin side of the existing culvert is 10.9 feet; therefore, water currently does not begin to fill the basin until the water surface elevation of the Sacramento River at the I Street Bridge is approximately 10.4 feet. The invert on the basin side of the new culvert would be approximately 10 feet so that water from NEMDC/Steelhead Creek would begin to fill the basin and flood the habitat at a lower water surface elevation (approximately 9.5 feet at the I Street Bridge); therefore, the basin would fill sooner than the existing culvert allows. This would increase the frequency of flooding within the basin which would help improve rearing habitat for fish and alleviate conveyance pressure on NEMDC/Steelhead Creek during moderate river stages. During higher stages and floods, the basin and its surrounding berms are well below the water stage and surrounding NEMDC West and NEMDC East levee crowns, and the project would have no effect on NEMDC/Steelhead Creek or American River conveyance.

The proposed project would not result in increased off-site flooding, such that the volume of the basin and its overall flood storage capacity would not be altered by the proposed project. In fact, the larger-sized culvert would be more responsive to fluctuations in the water surface elevation of NEMDC/Steelhead Creek for a wider range of flows. This would improve the ability of the basin to effectively act as an overflow floodplain to NEMDC/Steelhead Creek .

In conjunction with swale grading activities, which would deepen the swales by less than 1 foot in the northernmost part of the basin near the culvert, creek-floodplain connectivity, and frequency and duration of flood events would be improved. These improved hydrologic interactions would likely lead to more successful revegetation and habitat enhancement efforts, and thus would provide better habitat as the site matures. Overall, the proposed project would increase the availability of the site to flooding; thereby improving habitat conditions.

Construction of the proposed project would beneficially increase seasonal on-site flooding in order to restore and improve existing habitats; however, the proposed project would not alter existing drainage patterns other than the speed of responsiveness to NEMDC/Steelhead Creek during moderate flows, nor would it increase runoff in a manner that would result in off-site flooding, therefore, this impact would be less than significant. No mitigation would be required.

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

Less-than-Significant Impact. The NEMDC/Steelhead Creek is a drainage canal whose waters have been interacting with the Site 18A basin since the excavation of borrow material and installation of the culvert in1996. The Site 18A basin can hold a small fraction of the total NEMDC capacity, and the volume of the basin would remain unchanged. Water levels in the basin are controlled by water levels in NEMDC/Steelhead Creek, and when NEMDC/Steelhead Creek is experiencing high flows or flood stages, the basin would be flooded. Furthermore, no storm drainage or municipal infrastructure would be affected by the proposed project. For these

reasons, the proposed project is not anticipated to substantially increase the amount of surface runoff in a manner that would exceed the capacity of existing or planned storm water drainage systems; therefore, this impact would be less than significant, and no mitigation would be required.

f) Otherwise substantially degrade water quality?

Less than Significant with Mitigation Incorporated. See discussion in a) above.

> Mitigation Measure: Implement Mitigation Measure HYD-1 (Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices).

Implementation of Mitigation Measure HYD-1 would reduce the construction-related impacts associated with water quality degradation to a less-than-significant level by 1) preventing discharges of pollutants to a surface water or groundwater, and 2) identifying and maintaining the appropriate BMPs to prevent erosion and subsequent sedimentation during construction of the proposed project. Upon completion, the proposed project would not result in wastewater discharges or other point-source discharges subject to waste discharge requirements. Furthermore all disturbed areas would be promptly revegetated to stabilize soils and initiate restoration and enhancement activities.

g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The proposed project would include replacing an existing culvert, restoring ecosystem function of the floodplain habitat, and providing ecosystem functional lift. The proposed project would not include, or indirectly cause, construction of any housing or alteration of flood protection levees. Therefore, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project is located within the 100-year floodplain (**Exhibit 3.9-2**). The project would replace the existing culvert in the same location, and the replacement culvert would be wider and taller in order to enhance fish passage and facilitate exchange of flows. The replacement culvert is designed to allow water to back up more quickly and earlier into Site 18A during moderately high flow events in NEMDC/Steelhead Creek, and unimpededly flow out of the basin when floodwaters recede. Flows in NEMDC/ Steelhead Creek and the NEMDC/Steelhead Creek channel, itself, would not be impeded or redirected. In support of a Central Valley Flood Protection Board (CVFPB) encroachment permit application for the project, a hydraulic analysis was conducted. The analysis determined that the culvert would encroach less than 1% into the conveyance area of the American River floodway, would be well below the design water surface elevation, and would not significantly affect floodway conveyance (MBK, 2015). No new structures are proposed as part of the proposed project. This impact would be less than significant, and no mitigation would be required. See items c) and d) above for additional information.

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less-than-Significant Impact. The proposed project is not located in a dam inundation zone, and would not result in disturbance to flood protection levees. The existing culvert that would be replaced as part of the proposed

project is located within the existing American River Parkway bike trail embankment. The bike trail embankment surrounds the entire site (see **Exhibit 2-2** and **Exhibit 2-3** in Section 2, "Project Description"). Furthermore, Site 18A is in a floodway surrounded by levees established to provide flood protection to structures and the local communities (**Exhibit 3.9-1**). The project site lies between levees maintained by Reclamation District No. (RD) 1000 and the American River Flood Control District, and the NEMDC/Steelhead Creek channel is maintained by DWR .

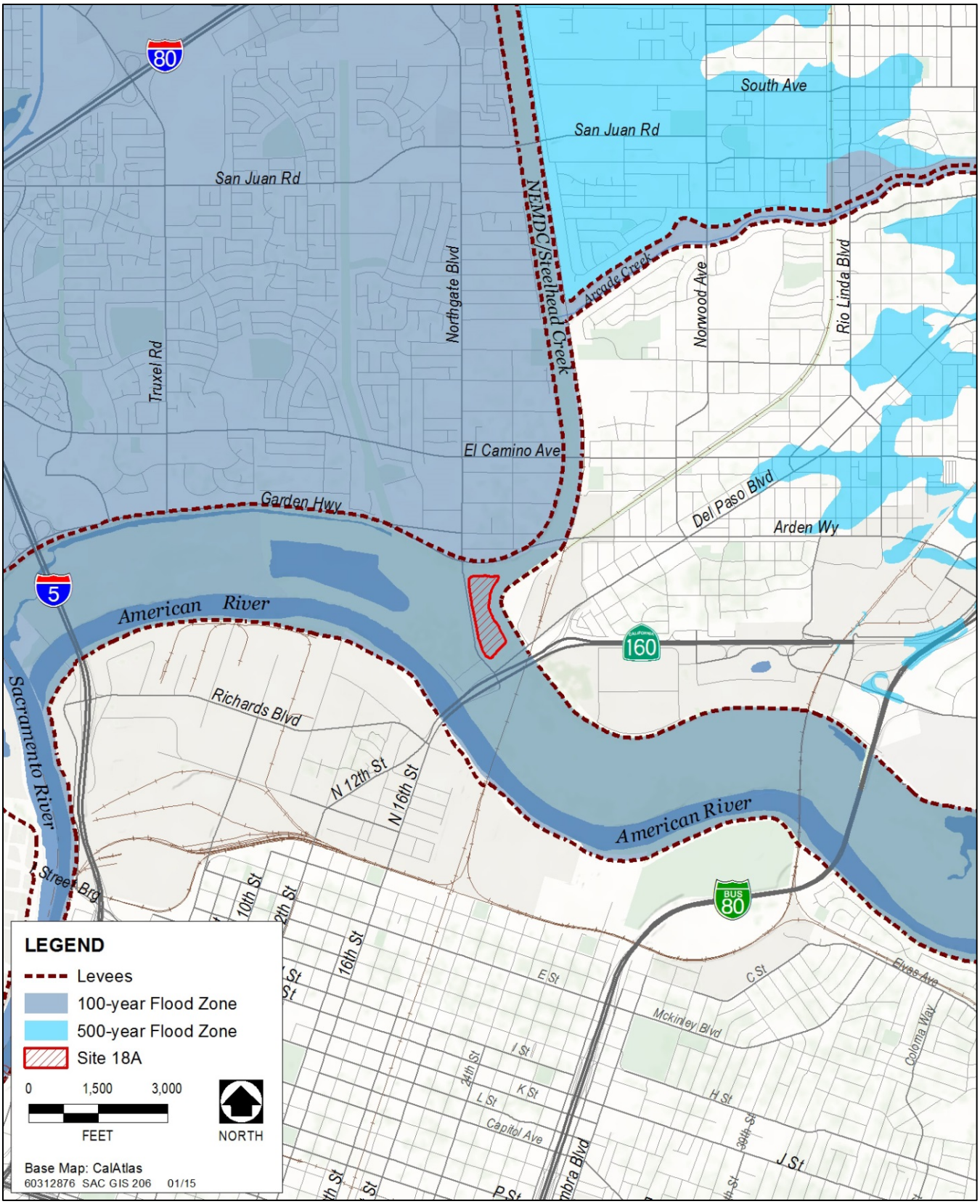
In accordance with the Sacramento County General Plan of 2005-2030 Conservation Element Policy CO-98, SAFCA would coordinate with Federal, State and local agencies overseeing levee and bank stabilization (Sacramento County 2011). NEMDC/Steelhead Creek is a regulated stream under the Water Code 8710 and the Central Valley Flood Protection Board (CVFPB) California Code of Regulations, Title 23, Division 1 (CVFPB 2010). As such, SAFCA would consult with the CVFPB, as appropriate, to acquire the regulatory approvals necessary to obtain a floodplain encroachment permit to perform work in the NEMDC/Steelhead Creek and American River floodplain and within the American River Parkway bike trail embankment.

The proposed project would not disrupt the existing flood protection system and would not expose people or structures to a risk of loss, injury or death from flooding. Therefore, this impact would be less than significant, and no mitigation would be required. See item g) above for additional information.

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

No Impact. The proposed project site is relatively flat, with an approximate2 percent slope on the basin floor and 4H:1V side slopes on the interior of the surrounding berm,; therefore, the likelihood of mudflows resulting from a landslide in these locations is considered low. No impact would occur, and no mitigation would be required.

See discussion a) iv) in Section 3.6, "Geology and Soils," for further information. The proposed project is located in the Central Valley, far from the Pacific Ocean, and would not be subject to tsunamis. A seiche is an oscillation of the surface of a lake caused by ground movement, which varies in period from a few minutes to several hours. The basin is typically dry most of the year, as opposed to a lake or reservoir that would usually have water impounded for a significant time period. Risk of seismic ground movement in the area is low (see section 3.6). Therefore, the risk of ground movement occurring during the period when the basin is flooded, thus potentially forming a seiche, would be even lower. Also, the propose project would not change this risk. Since the project area is not subject to tsunamis, and the likelihood of mudflows or seiches is low, there would be no impact. Therefore, no mitigation would be required.



Sources: Federal Emergency Management Agency 2013, DWR 2011, Sacramento County 2013

Exhibit 3.9-2. 100-Year Floodplain

3.10 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.1 ENVIRONMENTAL SETTING

Site 18A is a seasonally flooded wetland and riparian habitat area that encompasses approximately 17 acres in the American River Parkway upstream from Discovery Park, immediately south of the NEMDC/Steelhead Creek low-flow channel near the confluence with the Sacramento River and directly east of Northgate Boulevard (see **Exhibit 2-1** and **Exhibit 2-2** in Section 2, "Project Description").

Site 18A was previously used as a borrow site in 1996. Following the 1996 excavation, the area was modified to function as a backwater floodplain basin for the Sacramento and American Rivers and restored to provide wildlife habitat. Since it was restored, the project site has been periodically monitored and managed by SAFCA as a habitat mitigation site.

The American River Parkway bike trail circles around all four sides of the site along the top of the embankment that defines Site 18A. Dense riparian woodlands are located northeast of the site along both sides of NEMDC/Steelhead Creek and west of Northgate Boulevard. To the east of Site 18A is the NEMDC East Levee/American River North Levee and commercial and light industrial land uses that include an indoor soccer arena, paper recycling facility, and an auto repair shop. The Sacramento Northern Bike Trail is located east of Site 18A and the bike trail runs in a north-south direction along the NEMDC East Levee crown. The Sacramento Northern Bike Trail can be accessed at the point where the American River Parkway bike trail crosses Del Paso Boulevard. The closest residences to Site 18A are located north of the Arden-Garden Connector.

Several overhead transmission lines span over the southwest portion of Site 18A with transmission line towers located on both the south and west sides of the basin (see **Exhibit 2-3**). The proposed project would only affect land within the Western Area Power Administration (WAPA) transmission line easement (Del Rio, pers. comm., 2015). The proposed project would not affect WAPA from an electrical clearance point of view. If grading and planting activities are proposed within the WAPA transmission easement, these activities may require permission from WAPA. SAFCA would obtain permission for activities within the easement if required.

AMERICAN RIVER PARKWAY PLAN

Site 18A is located within the American River Parkway and subject to the American River Parkway Plan, which was first adopted in1962. The American River Parkway Plan 2008 Update was adopted in 2009 by the Sacramento County Board of Supervisors, the Sacramento City Council, and the California Legislature. The American River Parkway Plan addresses the entire length of the parkway, which includes areas in the unincorporated County, the City of Sacramento, the City of Rancho Cordova, and the Lake Natoma portion of the Folsom Lake State Recreational Area. The parkway plan was adopted as an element of the Sacramento County General Plan, and is referenced in the general plans of the Cities of Sacramento and Rancho Cordova.

The American River Parkway Plan provides a guide to land use decisions affecting the American River Parkway, specifically addressing its preservation, use, development, and administration. The purpose of the American River Parkway Plan is to ensure preservation of the naturalistic environment while providing limited development to facilitate human enjoyment of the American River Parkway, and to act as the management plan for the Federal and State Wild and Scenic Rivers Acts.

The American River Parkway Plan land use designations regulate the types of land uses, location, and level of facility development or degree of natural resource protection within the parkway. Site 18A is designated by the American River Parkway Plan as Protected Area. This designation identifies tracts of naturally occurring vegetation and wildlife, which although capable of sustaining light to moderate use with minimal alterations to the natural landscape, would be easily disturbed by heavy use. General access is encouraged, but facilities and other improvements are limited to convenience-type facilities. Activities that are compatible with these areas include nature appreciation, trails recreation, and aquatic recreation (other than motorized boating and motorized boat access), for individuals and small groups (Sacramento County 2008:117).

The American River Parkway Plan's land use policies regulate uses within the parkway, including the location and type of activities, as well as facilities and structures associated with those uses. For uses adjacent to the parkway, the American River Parkway Plan provides policy guidance for jurisdictions regulating uses outside of the parkway. The purpose of this policy guidance is to ensure that adjacent uses are sensitive to the American River Parkway's naturalistic setting and scenic values, protect the parkway from adverse visual impacts, and encourage a positive relationship with adjacent communities (Sacramento County 2008:7-111).

The following policies from the *American River Parkway Plan* (2008) regarding land use planning apply to the proposed project:

- **Policy 3.2:** Agencies managing the Parkway shall protect, enhance and expand the Parkway's native willow, cottonwood, and valley oak-dominated riparian and upland woodlands that provide important shaded riverine aquatic habitat (SRA), seasonal floodplain, and riparian habitats; and the native live oak and blue oak woodlands and grasslands that provide important terrestrial and upland habitats.

- **Policy 3.7:** The Parkway shall be managed to preserve, protect and/or restore riparian and in-channel habitat necessary for spawning and rearing of fish species, including native Chinook salmon (fall-run), steelhead, and Sacramento splittail, and recreational non-native striped bass and American shad. Priority shall be on providing diversity and complexity of habitat, consistent with recreational safety needs.

- **Policy 3.11:** Agencies managing the Parkway shall identify, enhance and protect:

a. areas where maintaining riparian vegetation will benefit the aquatic and terrestrial resources;

b. current shaded riverine aquatic habitat; and

c. other areas that can support a shaded riverine aquatic habitat, as time and resources permit, especially as associated with flood control or Federally/State mandated species protection projects.

CITY OF SACRAMENTO GENERAL PLAN

Site 18A is located within the City of Sacramento and the proposed project elements on Site 18A are governed by the *City of Sacramento 2035 General Plan* (2014). The City General Plan update was adopted by the City Council on March 3, 2015. The City General Plan contains goals and policies related to land use and urban design; historic and cultural resources; economic development; housing; mobility; utilities; education, recreation, and culture; public health and safety; environmental resources; and environmental constraints. There are no goals and policies from the City of Sacramento General Plan regarding land use planning applicable to the proposed project.

City General Plan Land Use Designations and Zoning

- Site 18A and lands surrounding the site are designated by the City of Sacramento General Plan as Parks and Recreation. This land use designation includes greenways, large developed parks, and other areas primarily used for recreation. Typically, these areas are characterized by a high degree of open area and a limited number of buildings (City of Sacramento 2014:2-65).

Site 18A and lands surrounding the site are zoned by the City of Sacramento as American River Parkway-Floodplain. The American River Parkway-Floodplain zoning code is used to prevent the loss of life and property by prohibiting the erection of improvements or structures in a designated floodway, to protect the natural features of the American River floodplain, to prevent erosion and siltation, and to preserve valuable open space.

3.10.2 DISCUSSION

a) Physically divide an existing community?

No Impact. Culvert replacement, swale modifications, and habitat vegetation and establishment would occur on the existing seasonally flooded wetland and riparian habitat area. Because there are no existing residences within or in the vicinity of Site 18A, implementing the proposed project would not physically divide an established community. Therefore, no impact would occur, and no mitigation would be required.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project?

Less-Than-Significant Impact. SAFCA, acting as a joint powers authority pursuant to the Joint Exercise of Power Act (California Government Code Section 65000), must consider relevant Federal and State land use policies, but is exempt from plans, policies, and regulations adopted by local agencies (California Government Code Section 53090). Nevertheless, the following analysis considers the proposed project's consistency with relevant adopted local plans and policies to describe how local agencies address resource issues within and in the vicinity of Site 18A.

As stated previously, there are policies from the adopted City of Sacramento General Plan regarding land use planning applicable to the proposed project. Site 18A is designated by the City General Plan as Recreation and zoned American River Parkway-Floodplain. Implementing the proposed project would involve replacing the existing culvert, regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A, and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities. These improvements would occur on the existing seasonally flooded wetland and riparian habitat area and would not introduce land uses or result in other changes in land use that would cause inconsistencies with the Recreation land use designation and American River Parkway-Floodplain zoning code.

Site 18A is within the American River Parkway and would be subject to the American River Parkway Plan. Policies 3.2, 3.7, and 3.11 of the American River Parkway Plan support the protection, enhancement, and expansion of native habitats that benefit fish species, including riparian, woodland, and in-channel habitat that provides important shaded riverine aquatic habitat necessary for spawning and rearing of fish species (see Section 3.5, "Biological Resources," for further discussion). Habitat enhancement activities would focus on improving soil conditions to support revegetation of disturbed areas; improving existing wetland and riparian habitat quality and variability by planting additional seasonal wetland plants and riparian scrub; and increasing seasonally submerged vegetation, overhead cover, and fish rearing and feeding habitat. Improved floodplain-creek connectivity and enhancement of vegetative cover would likely improve fish rearing habitat, reduce fish stranding, and facilitate juvenile salmonid outmigration. Therefore, implementing the proposed project would be consistent with the American River Parkway Plan.

Consistency issues with applicable land use plans and policies would be issues related to land use regulations and not to a physical environmental consequence of project implementation. Therefore, conflicts with applicable adopted land use plans and policies would not be considered a significant impact under CEQA, in and of itself. Specific impacts associated with other resource and issue areas are addressed in each technical section of this IS/MND as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental effects that could result from implementing the proposed project.

For the reasons described above, the proposed project would not conflict with City of Sacramento General Plan policies, land use designations, or zoning, or with American River Parkway Plan policies.

A WAPA transmission line easement traverses, and its overhead transmission lines span over the southwest portion of proposed project footprint on Site 18A. The transmission line towers are outside the basin to the south and west. While the proposed project would not affect WAPA from an electrical clearances point of view, if grading and planting activities are proposed within the transmission line easement, these activities may require permission from WAPA. Because permission would be requested for modifications within the WAPA easement if needed, any grading would be minor, and no trees or shrubs would be planted in the easement, the project is expected to comply with WAPA requirements without substantial alteration. Therefore, the impact would be less than significant, and no mitigation would be required.

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

No Impact. No adopted or approved habitat conservation or natural community conservation plans are in effect that would apply to the proposed project because the proposed project is outside of the Natomas Basin Habitat Conservation Plan area. Therefore, no impact would occur, and no mitigation would be required.

3.11 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.11.1 ENVIRONMENTAL SETTING

Under the Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board's decision to designate an area is based on a classification report prepared by the CGS and on input from agencies and the public. The project site lies within the designated Sacramento-Fairfield Production-Consumption Region for Portland cement concrete aggregate, which includes all designated lands within the marketing area of the active aggregate operations supplying the Sacramento-Fairfield urban center.

In compliance with SMARA, CGS has established the classification system shown in **Table 3.11-1** to denote both the location and significance of key extractive resources.

Table 3.11-1. California Geological Survey Mineral Land Classification System

Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
MRZ-1	Areas of mined out PCC-grade aggregate resources.
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood exists for their presence.
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
MRZ-4	Areas where available data is inadequate for assignment to any other MRZ.

Notes: MRZ = Mineral Resource Zone ; PCC = Portland cement concrete
Source: Dupras 1999:Plate 3

The project site is located in an area classified by CGS as MRZ-3—areas containing mineral deposits, the significance of which cannot be evaluated from available data (Dupras 1999:Plate 3).

The Sacramento County General Plan indicates there are no locally important mineral resources in the project vicinity (Sacramento County 2011:Figure 3).

3.11.2 DISCUSSION

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No Impact. Project-related activities would not occur in an area of known mineral resources (i.e., classified by CGS as MRZ-2) (Dupras 1999:Plate 3). Therefore the proposed project would not result in the loss of availability of known mineral resources, and no impact would occur. Therefore, no mitigation would be required.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The project site is not located in an area that has been designated as a locally important mineral resource recovery site (Sacramento County 2011: Figure 3). Therefore, no impact would occur and no mitigation would be required.

3.12 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or Federal standards?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1 ENVIRONMENT SETTING

INTRODUCTION

This section generally describes the ambient noise environment in the project vicinity, summarizes applicable noise- and vibration-related standards, and analyzes potential noise and vibration impacts of the proposed project, specifically the potential for the project to cause a substantial temporary or permanent increase in ambient noise levels within or around the project site, or to expose people to excessive noise or vibration levels.

Noise

Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and, therefore, may cause general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment.

Decibels (dB) are the standard unit of measurement of the sound pressure generated by noise sources and are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale for earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the noise energy would result in a 3-dB decrease.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-weighted scale, which approximates the frequency response of the average young ear when

listening to most ordinary everyday sounds, was devised. Noise levels using A-weighted measurements are written dBA or dB. All noise levels presented below are A-weighted unless described otherwise.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dB (increase or decrease) and that a change of 5 dB is readily perceptible (California Department of Transportation [Caltrans] 2009). A noise level that increases by 10 dB is perceived as twice as loud and a noise level that decreases by 10 dB is perceived as half as loud.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of frequencies from distant sources that create a relatively steady background noise in which no particular source is identifiable. Average noise levels over a period of minutes or hours, or equivalent sound levels are usually expressed as dB L_{eq}, which typically assumes a 1-hour average noise level and is used as such in this report. The maximum noise level (L_{max}) is the highest sound level occurring during a specific period. The Community Noise Equivalent Level (CNEL) is the 24-hour L_{eq} with a 5-dB "penalty" for the evening noise-sensitive hours from 7 p.m. to 10 p.m. and a 10-dB "penalty" applied during nighttime noise-sensitive hours from 10 p.m. to 7 a.m. The day-night average noise level (L_{dn} or DNL) is similar to the CNEL but with no adjustment (penalty) during evening hours; that is, daytime is defined as 7 a.m. to 10 p.m.

Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, and the sound level attenuates (decreases) at a rate of 6 dB for each doubling of distance from a point/stationary source. Roadways and highways and, to some extent, moving trains consist of several localized noise sources on a defined path; these are treated as "line" sources, which approximate the effect of several point sources. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. Therefore, noise from a line source attenuates less with distance than noise from a point source with increased distance.

Groundborne Vibration

Groundborne vibration is energy transmitted in waves through the ground. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source. This approach considers only the attenuation from geometric spreading and tends to provide for a conservative assessment of vibration level at the receiver.

Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration. Vibration is typically described by its peak and root-mean-square (RMS) amplitudes. The RMS value can be considered an average value over a given time interval. The peak vibration velocity is the same as the "peak particle velocity" (PPV), generally presented in units of inches per second (in/sec). PPV is the maximum instantaneous positive or negative peak of the vibration signal and is generally used to assess the potential for damage to buildings and structures. The RMS amplitude is typically used to assess human annoyance to vibration.

Existing Noise Conditions

As described in Chapter 2, "Project Description," the project area is located south of NEMDC/Steelhead Creek, north of Del Paso Boulevard and east of Northgate Boulevard, in the City of Sacramento, California. **Exhibit 1-1**, "Project Location Map," in Section 1 shows the location of the project area.

Sensitive Land Uses

Noise-sensitive land uses are those uses where quiet is essential to the purpose of the land use. Noise-sensitive land uses include residences and buildings where people normally sleep (including hospitals and hotels), as well as uses where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material, such as schools, libraries, theaters, and houses of worship. The closest noise-sensitive uses to the project area are the residential properties along Columbus Avenue just north of the Arden-Garden Connector and north of the project area, the bike paths along the boundary of the project site, and the commercial area along Walkway and Railroad Drive to the east of the project site. The structures closest to the project area that would be evaluated for structural damage from vibration are approximately 400 feet from the primary project construction areas, to the north and east.

Existing Noise Sources

The existing noise environment near the project site is influenced primarily by vehicular traffic on roadways that surround the project site: Arden-Garden Connector, Northgate Boulevard, Del Paso Boulevard, Walkway and Railroad Drive. Other sources of noise in the vicinity of the project site include the rail line located approximately 1,100 feet to the east of the project site. The existing noise environment near the project site is also influenced by natural sources (e.g., wind and birds).

Ambient Noise Level Surveys

AECOM measured ambient noise levels near existing noise-sensitive uses at various locations in the project area. **Table 3.12-1** summarizes the results of the ambient noise-level measurements. Four short-term (15-minute) measurements of ambient noise levels were conducted on Tuesday, December 9, 2014, in the project area, as shown in **Exhibit 3.12-1**. The existing noise environment in the project vicinity was dominated by local and distant traffic sources, railroad noise, and natural sources (e.g., wind and birds). As shown in **Table 3.12-1**, measured ambient noise levels at the noise-sensitive land uses closest to the project area range between 52–60 dBA L_{eq}.

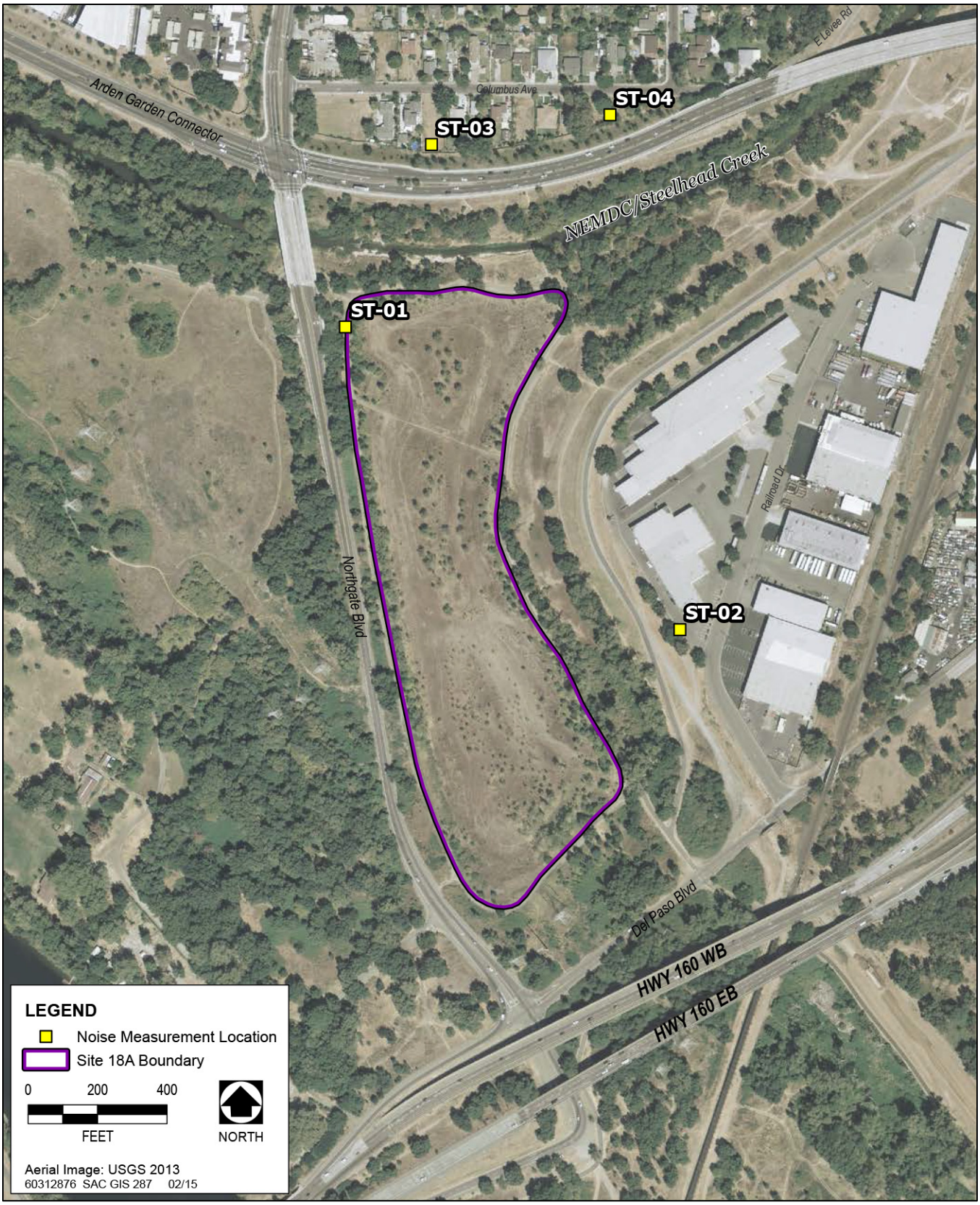
Table 3.12-1. Ambient Noise Levels in the Project Area

Receiver	Location	Time	Duration	Measured Sound Level, dB		
				L_{eq}	L_{max}	L_{min}
ST-01	Bike path, adjacent to northwest corner of project site	10:24	0:15	56	64	44
ST-02	1955 Railroad Drive (commercial)	12:25	0:15	52	72	43
ST-03	520 Columbus Avenue (residential)	13:02	0:15	60	76	42
ST-04	430 Columbus Avenue (residential)	13:31	0:15	59	70	41

Notes: dB = decibels; L_{eq} = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); L_{max} = maximum instantaneous sound level; L_{min} = minimum instantaneous sound level

Noise-level measurements were completed on Tuesday, December 9, 2014 using a Larson Davis Laboratories (LDL) Model 824 precision integrating sound-level meter. The meter was calibrated before the measurements using an LDL Model CAL200 acoustical calibrator. The meter was programmed to record A-weighted sound levels using a “slow” response. The equipment used complies with all pertinent requirements of the American National Standards Institute for Class 1 sound-level meters (ANSI S1.4).

Source: Data compiled by AECOM in 2014



Source: Adapted by AECOM in 2015

Exhibit 3.12-1. Noise-Monitoring Locations

Roadway Traffic Noise

In addition to the ambient noise measurements, existing traffic noise on the roadways in the project vicinity was estimated, based on the existing traffic volumes (using the recent daily traffic volumes in Google Earth). **Table 3.12-2** summarizes the modeled traffic noise levels 100 feet from the centerline of the roadways near the project site.[1] As shown in **Table 3.12-2**, existing traffic noise levels along the roadways in the project vicinity or those roadways that would be used by project haul trucks range from 55 dB L_{eq} to 69 dB L_{eq} at 100 feet from the centerlines of the modeled roadways.[2]

Table 3.12-2. Traffic Noise—Existing Condition

Roadway	Roadway Segment	dB, L_{eq} at 100 feet
Del Paso Boulevard	From Northgate Boulevard to Railroad Drive	65
Northgate Boulevard	From Garden Highway to Del Paso Boulevard	69
Garden Highway	From Truxel Road to Northgate Boulevard	69
Garden Highway	From Natomas Park Drive to Truxel Road	68
Garden Highway	From Interstate 5 to Natomas Park Drive	69
Garden Highway	From Gateway Oaks Drive to Interstate 5	68
Garden Highway	From Orchard Lane to Gateway Oaks Drive	56
Garden Highway	From Interstate 80 to Orchard Lane	55

Notes: dB = A-weighted decibels; L_{eq} = equivalent noise level
Source: Modeling conducted by AECOM in 2015

Railroad Noise

The Union Pacific Railroad (UPRR) operation in the vicinity of the project site is also a source of existing noise. To evaluate the effects of the railroad operation noise on the project site, the analysis used the mean Sound Exposure Level (SEL) of 102 dB (Federal Transit Administration [FTA], 2006). Using the mean SEL (102 dB) and the number of rail operations per day (14) a noise level of 71 dBA L_{dn} (61 dBA L_{eq}) at 50 feet from the center of the railroad tracks was calculated.

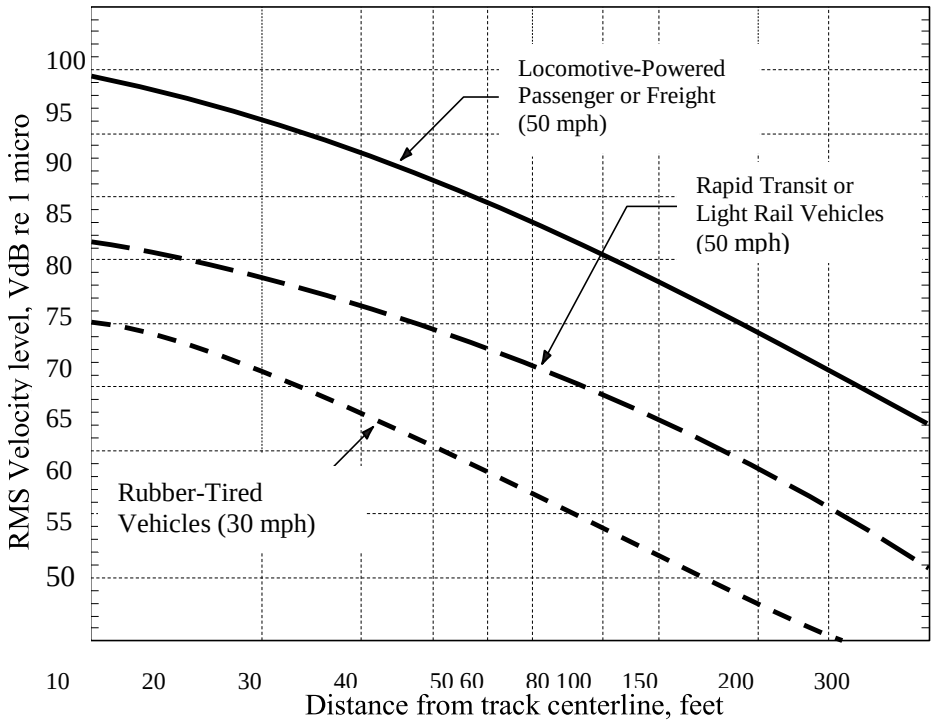
Existing Vibration

The existing vibration environment, like the noise environment, is dominated by transportation-related vibration. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the road right-of-way. The other source of existing groundborne vibration in the vicinity of the project site would be the railroad line located east of Railroad Drive to the east of the project site.

[1] 100 feet is a representative distance from the roadway centerline to adjoining noise-sensitive uses, such as residences, based on the width of the public rights-of-way surrounding the project site (approximately 80 feet).

[2] The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) combined with the California Vehicle Noise (Calveno) Reference Energy Mean Emission Levels was used to predict existing traffic noise levels within the project area. The FHWA model is the traffic noise prediction model currently preferred by FHWA, Caltrans, and county and city governments for assessing traffic noise.

However, the closest buildings to the project site that would be considered vibration sensitive under the proposed project would be approximately 500 feet (**Exhibit 3.12-1**) from the existing railroad tracks. Based on FTA data, heavy rail vehicles operating at 50 miles per hour (mph) would generate groundborne vibration of approximately 0.07 PPV (85 vibration decibels [VdB]) at a distance of 50 feet and approximately 0.007 PPV (65 VdB) at a distance of 500 feet from the track's centerline (FTA 2006, Figure 10-11 [reproduced below as **Exhibit 3.12-2**]).



Source: FTA 2006, adapted by AECOM in 2015

Exhibit 3.12-2. Generalized Ground-Surface Vibration Curves

3.12.2 DISCUSSION

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or Federal standards?

Less-than-Significant Impact with Mitigation Incorporated. The proposed project would generate temporary and short-term construction noise from equipment operating on the project site, and from the transport of construction equipment, materials and workers to and from the site.

Construction Equipment

Policy EC3.1.10 (Construction Noise) of the City of Sacramento General Plan Noise Element, and the City of Sacramento Noise Ordinance (8.68.80.D, [Exemptions] of the Sacramento City Code) were used for purposes of this analysis. Project-related construction noise at noise-sensitive residential properties (buildings) in the project vicinity would be considered significant if it would exceed 55 dBA L_{eq} during daytime hours (7 a.m.–10 p.m.) or 50 dBA L_{eq} during nighttime hours (10 p.m.–7 a.m.). These are seen as the most restrictive criteria established by City of Sacramento, and would provide the most conservative assessment of noise impacts at existing noise-

sensitive uses in the project vicinity. Project-related construction noise was estimated (as shown in **Table 3.12-3**) using FHWA's Roadway Construction Noise Model and a list of heavy equipment expected to be used.

As shown in **Table 3.12-3**, the unmitigated noise level produced by the combinations of equipment under construction phases for the proposed project would be approximately 74 to 87 dBA at a distance of 50 feet. Assuming standard spherical spreading loss (-6 dB per doubling of distance), and assuming the highest unmitigated construction noise level of 87 dBA at 50 feet, the project construction noise levels were estimated to be 63 to 69 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4**. These noise levels would exceed the threshold of 55 dBA L_{eq}. However, these results overstate actual noise exposure because they do not consider noise attenuation associated with ground and atmospheric absorption. Actual construction noise levels would be substantially less due to the presence of a wide earthen levee projecting approximately 10 feet higher than the "line of sight" between the noise source (construction equipment at the culvert site) and the receiver (the nearest home). An earthen berm, such as a levee, can provide noise attenuation of up to 15 dBA if it is several feet higher than the "line of sight" between the noise source and the receiver (FHWA 2011). Therefore, the project construction noise levels would be 40 to 54 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4** with berm. These noise levels would not exceed the threshold of 55 dBA L_{eq}.

Furthermore, Section 8.68.080 of the City's Noise Ordinance exempts certain activities, including "noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure," as long as these activities are limited to between the hours of 7 a.m. and 6 p.m. Monday through Saturday, and between the hours of 9 a.m. and 6 p.m. on Sunday. These exemptions are typical of City and County noise ordinances and reflect the recognition that construction-related noise is temporary in character, is generally acceptable when limited to daylight hours, and is expected as part of a typical urban noise environment (along with sirens).

Also, project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction would not exceed the applicable nighttime threshold of 45 dBA L_{eq}.

Therefore, noise levels from project-related construction would comply with the applicable daytime and nighttime noise exposure limits established by the City and would comply with the City's Noise Ordinance. Thus, this impact would be less than significant.

Construction Traffic

Construction of the proposed project would result in additional vehicle trips on the local roadway network as workers commute and equipment and materials are transported.

Project-related construction traffic noise levels were estimated (as shown in **Table 3.12-5**) using the FHWA's Roadway Noise Model (FWHA RD-77-108) at 100 feet. Noise-sensitive land uses including residential properties are located within 100 feet from the centerline of the routes designated for hauling material from Site 18A to the Reach 19A Berm Site. As shown in **Table 3.12-5**, the unmitigated noise level produced by the construction traffic for the proposed project would be approximately 55 dBA at the nearest noise-sensitive uses. These results represent the worst-case, conservative noise exposure because they do not consider noise attenuation associated with intervening structures and atmospheric absorption. Therefore, actual construction noise levels could be less.

Table 3.12-3. Construction Activities, Equipment, and Calculated Noise Levels, dB

Construction Activity		Estimated Duration	Anticipated Number and Type of Equipment that May Be Used by the Contractor	Noise Level at 50 Feet, dB	
				L_{max}	L_{eq}
Temporary Bike Trail Realignment	Installation	3 days	(1) Grader	85	81
			(1) Asphalt paver	85	82
			(1) Front-end loader	80	76
			(1) Smooth drum roller	85	78
			(1) Haul trucks	84	80
			Combined Noise Levels	**85**	**87**
	Removal	1 day	(1) Front-end loader	80	76
			(1) Haul trucks	84	80
			Combined Noise Levels	84	81
Culvert and Approach Channel Construction	Excavation	4 days	(1) Excavator	**85**	**81**
	Installation of Culvert and Rip-Rap Replacement	3 weeks	(1) Small (D4 or similar) bulldozer	85	81
			(2) Jumping-jack style compactors	80	73
			(2) Sheeps-foot compactors	80	73
			(1) Sheeps-foot roller	85	78
			(3) 10-wheel haul trucks	84	80
			(1) Concrete truck and pump rig	85	81
			Combined Noise Levels	**85**	**87**
	Backfill and Grading	5 days	(1) D4 bulldozer	85	81
			(1) Excavator	85	81
			(1) D4 bulldozer or grader	85	81
			Combined Noise Levels	**85**	**86**
Habitat Enhancement	Swale-Grading	2 days	(1) D6 bulldozer or grader	**85**	**81**
	Deep Ripping and Soil Improvements	3 days	(1) D8 bulldozer	**85**	**81**
	Seeding Native Grass Mix	2 days	Broadcast seeding	**N/A**	**N/A**
	Installation of Riparian Plantings	5 days	Hand planting with shovels	**N/A**	**N/A**
	Irrigation	29 cumulative months over a 4-year period	(1) Water truck OR	**84**	**80**
			(1) Water pump	**77**	**74**

Notes: dB = decibels; L_{eq} = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); L_{max} = maximum instantaneous sound level; N/A = not available

Source: Data compiled by AECOM in 2015

Table 3.12-4. Construction Equipment Noise Levels (dB, L_{eq}) at the Nearest Noise-Sensitive Uses in the Project Area

Receiver	Location	Shortest Distance (feet) Between Noise-Sensitive Uses and Proposed Construction Areas	Noise Level, dB L_{eq}						
			Exterior			Interior			
			Ambient Noise	Maximum Project Construction Noise		Project Noise, Doors/Windows Open[1]		Project Noise, Doors/Windows Closed[2]	
				No Berm	With Berm[3]	No Berm	With Berm	No Berm	With Berm
ST-01	Bike path, adjacent to northwest corner of project site	50	56	87	NA	N/A	NA	N/A	NA
ST-02	1955 Railroad Drive (commercial)	400	52	69	54	54	39	44	29
ST-03	520 Columbus Avenue (residential)	400	60	69	54	54	39	44	29
ST-04	430 Columbus Avenue (residential)	400	59	69	54	54	39	44	29

Notes: dB = decibels; Leq = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); N/A = not available; ST = short-term

[1] 15 dB reduction for doors/windows open (EPA 1974).

[2] 25 dB reduction for doors/windows closed (EPA 1974).

[3] 15 dBA reduction assumed for levee based on attenuation for intervening earthen berm (FHWA 2011).

Source: Data compiled by AECOM in 2015

Table 3.12-5. Traffic Noise—Existing + Construction Condition

Roadway	Roadway Segment	Traffic Noise Level dB, L_{eq} at 100 feet			Project Increase
		Existing	Construction	Existing + Construction	
Del Paso Boulevard	From Northgate Boulevard to Railroad Drive	65	55	65	0
Northgate Boulevard	From Garden Highway to Del Paso Boulevard	69	55	69	0
Garden Highway	From Truxel Road to Northgate Boulevard	69	55	69	0
Garden Highway	From Natomas Park Drive to Truxel Road	68	55	68	0
Garden Highway	From Interstate 5 to Natomas Park Drive	69	55	69	0
Garden Highway	From Gateway Oaks Drive to Interstate 5	68	55	68	0
Garden Highway	From Orchard Lane to Gateway Oaks Drive	56	55	59	3
Garden Highway	From Interstate 80 to Orchard Lane	55	55	58	3

Notes: dB = A-weighted decibels; L_{eq} = equivalent noise level.

Source: Modeling conducted by AECOM in 2015

Policy EC3.1.10 (Construction Noise) of the City of Sacramento General Plan Noise Element and Section 8.68 of the Sacramento City Code were used for purposes of this analysis. Project-related construction traffic noise at noise-sensitive residential properties (buildings) in the project vicinity would be considered significant if it would exceed 55 dBA L_{eq} during daytime hours (7 a.m.–10 p.m.) or 50 dBA L_{eq} during nighttime hours (10 p.m.–

7 a.m.). These are seen as the most restrictive criteria established by the City of Sacramento, and would provide the most conservative assessment of noise impacts at existing noise-sensitive uses in the project vicinity.

As shown in **Table 3.12-5**, the existing traffic noise level along the roadways that would be used by project hauling trucks, ranges from 55 dB L_{eq} to 70 dB L_{eq} at 100 feet from the centerlines of the roadways. Noise-sensitive land uses including residential properties are located within 100 feet from the centerline of the routes designated for hauling material from Site 18A to the Reach 19A Berm Site. Therefore, the existing traffic noise levels already exceed the threshold of 55 dBA $L_{eq,}$ at the noise sensitive uses along the modeled roadway segments. As shown in **Table 3.12-5**, the increase in traffic noise level due to the project construction traffic would range from 0 (along most of the roadway segments) to 3 dB (only along Garden Highway from Interstate 80 to Gateway Oaks Drive). Because project-related construction traffic would increase traffic noise levels along some roadway segments exceeding the applicable noise threshold, this impact would be potentially significant. Project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction traffic would not result in an exceedance of the applicable nighttime threshold of 45 dBA L_{eq}.

Mitigation Measure NOI-1: Implement Measures to Reduce Construction-Related Traffic Noise Effects.

SAFCA shall require that its engineering design consultants and construction contractors implement the following measures to avoid and minimize construction traffic noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control.

To the extent feasible and practicable, the primary construction contractors shall employ noise-reducing construction practices such that noise from construction complies with applicable noise-level rules, regulations, and ordinances that apply to the work, including the noise standards established for non-transportation noise sources by the applicable agencies (City of Sacramento), depending on the jurisdictional location of the affected receptor(s). Measures that shall be used to limit noise shall include the following:

a) Prohibit use of materials and equipment deliveries prior to 7 a.m. and after 6 p.m., Monday through Saturday; and prior to 9 a.m. and after 6 p.m., on Sunday.

b) Establish and enforce construction site and haul road speed limits.

c) Route construction-related truck traffic along roadways that will cause the least disturbance to residents.

d) Use high-grade engine exhaust silencers and engine-casing sound insulation.

e) Restrict the use of bells, whistles, alarms, and horns to safety-warning purposes.

Timing: During construction activities.

Responsibility: Sacramento Area Flood Control Agency.

Implementing Mitigation Measure NOI-1, combined with the fact that construction trips would not generally occur at times when people normally sleep, and would be limited to temporary and infrequent construction

activities, would reduce the traffic noise impact associated with project-related construction to a less-than-significant level.

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

Less-than-Significant Impact. The proposed project would generate construction vibration from equipment operating on the project site, and from the transport of construction equipment, materials and workers to and from the site.

Construction Equipment

Project construction–related vibration would result from the use of heavy earth-moving equipment for area clearing, excavation, and grading. These activities would produce a vibration level of approximately 87 VdB (0.089 in/sec PPV) at a distance of 25 feet (which is the reference vibration level for operation of a large bulldozer [FTA 2006; Caltrans 2004]). The distance between proposed construction activities and the closest acoustically sensitive uses would be approximately 100 to 1,700 feet, as shown in **Table 3.12-6**. Assuming a standard reduction of 9 VdB per doubling of distance (FTA 2006), the project-related construction vibration level at the nearest receivers would be approximately 32 to 69 VdB. This level of vibration is below any established threshold of significance and would not likely be perceptible. Therefore, this impact would be less than significant. No mitigation would be required.

FTA has published a technical manual entitled *Transit Noise and Vibration Impact Assessment* that provides criteria for groundborne vibration impacts with respect to building damage during construction activities (FTA 2006). According to FTA guidelines, a vibration-damage criterion of 0.20 in/sec PPV should be considered for non-engineered timber and masonry buildings. Furthermore, structures or buildings constructed of reinforced concrete, steel, or timber have a vibration-damage criterion of 0.50 in/sec PPV pursuant to the FTA guidelines. As shown in **Table 3.12-6**, the project-related temporary and short-term construction vibration level at the nearest receivers would be approximately 0.001 PPV to 0.031 PPV. This level of vibration is below the established threshold of significance of 0.50 in/sec PPV pursuant to the FTA guidelines and would not likely be perceptible. Therefore, this impact would be less than significant. No mitigation would be required.

Construction Traffic

Construction of the proposed project would result in additional vehicle trips on the local roadway network as workers commute and equipment and materials are transported. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the road right-of-way as shown in **Exhibit 3.12-2** above, for rubber-tired vehicles. Therefore, this impact would be less than significant, and no mitigation would be required.

Table 3.12-6. Construction Equipment Vibration Levels (VdB, PPV) at the Nearest Noise-Sensitive Uses in the Project Area				
Receiver	Location	Shortest Distance (feet) Between Noise-Sensitive Uses and Proposed Construction Areas	Project, Vibration Levels	
			PPV	VdB
ST-01	Bike path, adjacent to northwest corner of Project site	50	0.031 (N/A)	78 (N/A)
ST-02	1955 Railroad Drive (Commercial)	400	0.001	51
ST-03	520 Columbus Avenue (Residential)	400	0.001	51
ST-04	430 Columbus Avenue (Residential)	400	0.001	51

Notes: N/A = not available; PPV = peak particle velocity; VdB = vibration decibels
Source: Data compiled by AECOM in 2015

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

No Impact. The proposed project would involve temporary and short-term construction activities only, and would not introduce any permanent sources of noise. Additionally, the project would not alter the local environment, such as by increasing the noise production/exposure associated with existing, permanent sources of noise in the project area. Therefore, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project would generate construction noise from equipment operating on the project site, and from the transport of construction equipment, materials and workers to and from the site.

Construction Equipment

Ambient noise levels at the existing residential properties in the project vicinity ranged between 52 dBA L_{eq} and 60 dBA L_{eq}, during the daytime (7 a.m.–10 p.m.) hours (as shown in **Table 3.12-4**). A project-related construction noise level of +5 dB above the ambient level (L_{eq}) would be considered significant at residential receivers in the project vicinity.

Project-related construction equipment noise levels were estimated using FHWA's Roadway Construction Noise Model and a list of heavy equipment expected to be used. As shown in **Table 3.12-3**, the unmitigated noise level produced by the combinations of equipment under construction phases for the proposed project would be approximately 74 to 87 dBA at a distance of 50 feet. Assuming standard spherical spreading loss (-6 dB per doubling of distance), and assuming the highest unmitigated construction noise level of 87 dBA at 50 feet, the project construction noise levels were estimated to be 63 to 69 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4**. These results represent the worst-case, conservative noise exposure because they do not consider noise attenuation associated with ground and atmospheric absorption. Therefore, actual construction noise levels would be substantially less due to the presence of a wide earthen levee projecting approximately 10 feet higher than the "line of sight" between the noise source (construction equipment at the culvert site) and the receiver (the nearest home). An earthen berm, such as a levee, can provide noise attenuation of up to 15 dBA if it

is several feet higher than the "line of sight" between the noise source and the receiver (FHWA 2011). Therefore, the project construction noise levels would be 40 to 54 dBA L_{eq}, at the nearest noise-sensitive uses, as shown in **Table 3.12-4** with berm.

Ambient noise levels at the existing rural residential properties in the project vicinity ranged between 52 dBA L_{eq} and 60 dBA L_{eq}, during the daytime (7 a.m.–10 p.m.) hours (as shown in **Table 3.12-4**). The estimated project-related construction noise levels of 40 dBA L_{eq} to 54 dBA L_{eq} at residences closest to the project area (as shown in **Table 3.12-4**), would increase exterior ambient noise levels of 52 dBA L_{eq} and 60 dBA L_{eq} by 0 to 2 dB. This level of increase would not exceed the established threshold of 5 dB above ambient noise levels. Therefore, this impact would be less than significant.

With respect to the interior noise levels, the existing interior noise level of 45 dBA was assumed for residential uses (General Plan Policy EC 3.1.3 Interior Noise Standards). As discussed under item a) above, project-related construction noise levels with doors and windows closed would be 29 dBA L_{eq} at residences closest to the project area (as shown in **Table 3.12-4**). This level of interior noise would not exceed the applicable threshold of 45 dBA for interior uses. Therefore, project-related construction noise would not cause an increase of +5 dB or more above the ambient interior level at noise-sensitive receivers in the project vicinity.

Project construction would not extend into the nighttime hours (10 p.m.–7 a.m.), and therefore, construction would not exceed the applicable nighttime threshold of 45 dBA L_{eq}.

Project construction workers would be exposed to typical noise levels from heavy construction equipment during their daily activities. It is expected that project construction workers would use hearing protection while working around heavy equipment, which would also reduce their exposure to aircraft operations noise.

Construction Traffic

Construction activities associated with the proposed project would result in approximately 150 to 200 round-trip truck hauls to transport the excess soil material from Site 18A to the Reach 19A Berm Site over a 4-day period (Section 2.4.2 in Chapter 2, “Project Description”). Noise-sensitive land uses including residential properties are located within 100 feet from the centerline of the routes designated for hauling materials to the Reach 19A Berm Site. As shown in **Table 3.12-5**, the unmitigated noise level produced by the construction traffic for the proposed project would be approximately 55 dBA at the nearest noise-sensitive uses; and the existing traffic noise level along the roadways that would be used by project haul trucks, range from 55 dB L_{eq} to 70 dB L_{eq} at 100 feet from the centerlines of the roadways. As shown in **Table 3.12-5**, the increase in traffic noise level due to project construction traffic, above the existing traffic noise level would range from 0 (along most of the roadway segments) to 3 dB (only along Garden Highway from Interstate 80 to Gateway Oaks Drive). Because the increase would be less than 5 dB, this impact would be less-than-significant. Therefore, no mitigation would be required

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is not located within 2 miles of a public airport. The nearest airport, the CHP Academy Airport, is located approximately 4.5 miles west of the project site. Because all project activities would be located outside of the Airport Comprehensive Land Use Plan area and the proposed project would not involve any aircraft uses for construction or operations, the proposed project would not affect any airport operations.

Because the proposed project does not propose the addition of any noise-sensitive receivers, and would not expose people on- or off-site to excessive aircraft noise levels, no impact would occur. No mitigation would be required.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. No private airstrips are in the vicinity of the project site, and the proposed project would not affect any airstrip operations. Therefore, implementing the proposed project would not expose people on- or off-site to excessive noise levels. No impact would occur, and no mitigation would be required.

3.13 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Population and Housing. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 ENVIRONMENTAL SETTING

POPULATION

The City of Sacramento and Sacramento County have experienced population growth in the recent past, and this growth is forecasted to continue. The California Department of Finance (DOF) estimates that the City of Sacramento's total estimated population increased from 407,018 in 2000 to an estimated 466,488 in 2010, a 1.0 percent increase over the 10-year period (City of Sacramento 2013).

As of January 1, 2014, the City's total estimated population was 475,122 (DOF 2014). The City is expected to add an estimated 173,893 new residents by 2035, for a total estimated population of 640,381 (City of Sacramento 2013). This represents an increase of approximately 38 percent over the 2010 estimated population.

HOUSING

According to DOF, the estimated number of housing units in the City of Sacramento was 190,911, with an average household size of 2.62 persons per unit (DOF 2010). As of January 1, 2014, the DOF estimates the number of housing units in the City is the same as the number of housing units in 2010 (190,911 units); however, the average household size has increased to 2.66 persons per unit (DOF 2014).

In the City of Sacramento, the majority of housing units are single-family homes. Approximately 66 percent of these housing units in the City were attached and detached single-family homes in 2014 (DOF 2014).

3.13.2 DISCUSSION

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

No Impact. Implementing the proposed project would involve replacing the existing culvert, regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A, and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities. Construction activities would periodically occur between spring 2015 and October 2016 and would range from 2 days to 3 weeks in duration. The source of the construction labor force is unknown at this time, but workers would likely come from the local labor pool and union hiring halls. These jobs would not directly or indirectly induce substantial population growth.

The proposed project would not involve constructing new homes or businesses or extending roadways or other infrastructure that would directly or indirectly induce population growth. Consequently, implementing the proposed project would not affect current and/or planned population growth patterns within the City of Sacramento. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. Construction of the proposed project would occur on a seasonally flooded wetland and riparian habitat area. Because there are no existing residences within Site 18A, implementing the proposed project would not displace substantial numbers of existing homes that necessitates the construction of replacement housing elsewhere. Therefore, no impact would occur, and no mitigation would be required.

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

No Impact. Construction of the proposed project would occur on an existing seasonally flooded wetland and riparian habitat area. Because there are no existing residences within Site 18A, implementing the proposed project would not displace substantial numbers of people that necessitates the construction of replacement housing elsewhere. Therefore, no impact would occur, and no mitigation would be required.

3.14 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.1 ENVIRONMENTAL SETTING

The project site is located within Sacramento Fire Department (SFD) City District 3 (SFD 2014).

The Sacramento Police Department (SPD) provides law enforcement services in the project area. SPD patrol operations are divided into four command areas (North, Central, East, and South) that are further subdivided into Beats. Site 18A is located in Beat 1C of the North Command, which covers North and South Natomas (SPD 2013).

The areas surrounding Site 18A are served by Twin Rivers Unified School District, North Sacramento Unified School District, and Sacramento Unified School District. There are about 20 schools within 2 miles of the project site.

Site 18A is located within the American River Parkway, which consists of an assemblage of regional parks within the riparian corridor along the adjacent the American River stretching from the confluence with the Sacramento River upstream to Folsom Lake. The parkway is a valuable regional resource which attracts bicyclists, runners, walkers, horseback riders, and rafters. (Sacramento County 2008:10.)

3.14.2 DISCUSSION

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

FIRE PROTECTION?

No Impact. The project site would continue to be served by the SFD. The closest fire station within the SFD is Station 2 located at 1229 I Street, Sacramento, California. SFD Station 2 is located approximately 2 miles southwest of the project site. Implementing the proposed project would involve replacing a culvert and habitat enhancement within the Site 18A basin. Project construction and operation would not create new housing or other structures, and therefore, would not require additional fire protection facilities. Furthermore, access to the site would be maintained during construction in accordance with City of Sacramento fire policies and regulations. Therefore, no impact would occur, and no mitigation would be required.

Police protection?

No Impact. The project site would continue to be served by the SPD. The closest SPD substation is Richards Station located at 300 Richard's Boulevard, Sacramento, California. Richards Station serves the Central Command and is located on the south side of the American River approximately 0.8 mile from Site 18A. Kinney Station serves the North Command, which is responsible for patrolling the project area. Kinney Station is located approximately 3 miles northeast of the project site at 3550 Marysville Boulevard, Sacramento, California. Implementing the proposed project would involve replacing a culvert and habitat enhancement within the Site 18A basin, and would not require additional police protection facilities or services. Therefore, no impact would occur, and no mitigation would be required.

Schools?

No Impact. The proposed project would not provide any new housing or a large number of employment opportunities. Therefore, the proposed project would not generate new students or increase the demand on the local school systems. No impact would occur, and no mitigation would be required.

Parks?

No Impact. During proposed project construction, a portion of the American River Parkway bike trail west of the culvert would be temporary realigned to safely route bicyclists and other trail users around the west and south sides of the basin to the section of bike trail at the southeast corner of the site that leads to the bike trail crossing at Del Paso Boulevard. After replacement of the culvert and other construction activities, the realigned portion of the bike trail would be removed and the section of paved bike trail that crosses over the culvert would be reconstructed to pre-project conditions. The bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would also be closed to the public during construction. The approximately 280-foot-long portion of bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open to the public and haul trucks entering and exiting Site 18A during construction, but flaggers would be deployed to allow joint use of this section of bike trail by the recreating public and construction

vehicles. Therefore, access to the American River Parkway bike trail would be maintained during project construction. Moreover, the proposed project would not provide any new housing or a large number of employment opportunities that would generate new residents who would require new or expanded park facilities. Thus, there would be no impact, and no mitigation would be required.

Other Public Facilities

No Impact. No other public facilities would be affected by construction or operation of the proposed project. Therefore, no impact on other public facilities would occur, and no mitigation would be required.

3.15 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

3.15.1 ENVIRONMENTAL SETTING

The project site is located along the north bank of the Lower American River within the American River Parkway where the Parkway is joined by NEMDC/Steelhead Creek. The American River Parkway consists of an assemblage of regional parks along the adjacent riparian corridor stretching from the confluence with the Sacramento River upstream to Folsom Lake. The parkway is a valuable regional resource which attracts bicyclists, runners, walkers, horseback riders, and rafters. (Sacramento County 2008:10.)

The primary recreational feature within the parkway that would be affected by the proposed project is a portion of the American River Parkway bike trail. The American River Parkway bike trail runs along the American River from Discovery Park to Folsom Lake and connects to the Sacramento Northern Bike Trail linking the northern parts of Sacramento County to downtown.

The American River Parkway bike trail circles around all four sides of the site along the top of the embankment that surrounds and defines Site 18A. The existing culvert passes under the American River Parkway bike trail near the northwest corner of the Site 18A basin and pedestrians and bicyclists may access this portion of the bike trail from west of the existing culvert. Access to the bike trail is also provided by Del Paso Boulevard, just south of Site 18A. In addition, the southern terminus of the Sacramento Northern Bike Trail is located east of Site 18A and can be accessed at the point where the American River Parkway bike trail crosses Del Paso Boulevard.

3.15.2 DISCUSSION

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less-than-Significant Impact. The proposed project would not result in new housing or employment opportunities that would increase the population in the project vicinity. Therefore, the proposed project would not cause the deterioration of existing neighborhood or regional parks or other recreational facilities.

Implementing the proposed project would result in temporary closure and realignment of portions of the American River Parkway bike trail; however, access to the bike trail would be maintained through detours and

traffic control (see Item b), below). The quality of recreational experiences in the American River Parkway or along the American River Parkway bike trail and Sacramento Northern Bike Trail in the vicinity of Site 18A would likely be somewhat reduced, temporarily, as a result of noise, and visual disturbance. Degradation of the quality of recreational experiences due to construction activities would be temporary and short-term in nature. Any temporary shift in use of off-site bike trails or recreational facilities resulting from project construction would not be expected to accelerate the physical deterioration of any existing facility. Therefore, this impact would be less than significant, and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project would not result in new housing or employment opportunities that would increase the population in the project vicinity. Therefore, the proposed project would not require construction or expansion of existing recreational facilities, and the proposed project does not include development of any new recreational facilities.

Replacement of the existing culvert would require temporarily realigning the American River Parkway bike trail where the existing culvert passes under the bike trail near the northwest corner of the Site 18A basin. A temporary 8-foot-wide by approximately 130-foot-long asphalt concrete trail would be installed west of the culvert to safely route bicyclists and other trail users around the west and south sides of the basin to the section of bike trail at the southeast corner of the site that connects the bike trail to the crossing at Del Paso Boulevard (see **Exhibit 2-3** in Section 2, "Project Description"). Once the new culvert is in place and construction of the proposed project completed, the temporary asphalt concrete trail would be removed and the bike trail would be restored to pre-project conditions.

The American River Parkway bike trail along the north and east sides of the Site 18A embankment would require temporary closure to the public during construction. Haul trucks would use this portion of the bike trail to access the Site 18A work areas and this area could potentially be used for equipment staging. Any construction-related damage to this portion of the American River Parkway bike trail would be repaired and restored to pre-project conditions.

An approximately 280-foot-long portion of the American River Parkway bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open to the public and used by haul trucks entering Site 18A during construction. The crossing at Del Paso Boulevard provides access to the American River Parkway bike trail along the Site 18A embankment and access to the Sacramento Northern Bike Trail located east of Site 18A. Along this 280-foot-long portion of the American River Parkway bike trail and its intersection with Del Paso Boulevard, the Contractor would be required to deploy flaggers to intermittently hold public traffic, thereby allowing recreational users continued access to the bike trail.

As discussed above, proposed project construction activities would result in temporary closure and realignment of portions of the American River Parkway bike trail and potential damage to the bike trail along the Site 18A embankment during construction. However, access to the bike trail would be maintained through detours and traffic control and construction-related damage would be repaired to pre-project conditions. Therefore, this impact would be less than significant, and no mitigation would be required.

3.16 TRANSPORTATION/TRAFFIC

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Transportation/Traffic. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

3.16.1 ENVIRONMENTAL SETTING

ROADWAYS

No State highways would be used or affected by project-related construction traffic. The project site would be accessed from existing local roadways. Main access to the project site would be from Del Paso Boulevard, south of the project site (see **Exhibit 2-1** and **Exhibit 2-2** in Chapter 2, “Project Description”).

The project includes hauling approximately 2,000 cubic yards (cy) of soil offsite for use at the Reach 19A Berm Site. As explained in Chapter 2, “Project Description,” hauling on Garden Highway between the River Mile 0.5 Site (at approximately Natomas Park Drive) and the Reach 19A Berm Site has been previously addressed in the Draft Supplemental EIR (SEIR) No. 2 for the NLIP Landside Improvements Project (SAFCA 2012). This IS/MND therefore evaluates the portion of the haul route that would be new, extending from the access to the project at Del Paso Boulevard, along Northgate Boulevard, and along Garden Highway between Northgate

Boulevard and Natomas Park Drive. **Exhibit 2-1** illustrates these roadways, along with the locations of the River Mile 0.5 Site and the Reach 19A Berm Site.

The roadway segments that are addressed in this analysis are the roadway segments along the proposed haul route between Site 18A and the River Mile 0.5 Site. These roadway segments and their existing daily traffic volumes are presented in **Table 3.16-1**.

Table 3.16-1. Project Area Roadways Proposed to be Used by Haul Trucks

Roadway	From	To	Existing ADT
Del Paso Boulevard	Northgate Boulevard	Railroad Drive	8,486
Northgate Boulevard	Garden Highway	Del Paso Boulevard	21,224
Garden Highway	Truxel Road	Northgate Boulevard	23,026
Garden Highway	Natomas Park Drive	Truxel Road	17,778

Note: ADT = Average Daily Traffic
Source: Traffic Volumes from Google Earth, data compiled by AECOM in 2015

Bicycle and Pedestrian Facilities

Bikeways are classified as Class I (bike paths), Class II (bike lanes), and Class III (bike routes). According to the *Sacramento City/County Bikeway Master Plan* (City of Sacramento 2011), bikeways are planned in the vicinity of the project area along all major arterials and collectors including Del Paso Boulevard, and Northgate Boulevard, and surrounding the project site.

- **Class I (Bike trail or bike path):** A completely separated facility designated for the use of bicycles. The facility is separated from any street or highway by a physical space, berm, fence, or other barrier.
- **Class II (Bike lane):** A lane within a street or roadway designed for the one-way use of bicycles. It is an on-street facility with signs, striped lane markings, and pavement legends.
- **Class III (Bike Route):** Any on-street right-of-way recommended for bicycle travel which provides for shared-use with motor vehicles or pedestrian traffic.

Existing portions of the American River Parkway bike trail system surround the Site 18A basin and would be affected by the proposed project. Bicycle and pedestrian trails also exist adjacent to the portions of the proposed haul route between Site 18A and the River Mile 0.5 Site. Class II bike lanes are present on portions of Garden Highway and Northgate Boulevard along the haul route.

Airports

The project site is located approximately 4.5 miles east of the CHPAcademy Airport. However, as noted in Section 3.12, “Noise,” the proposed project is located outside of the area of influence for the CHP Academy Airport.

TRANSIT

No transit facilities are located in the project area. Sacramento Regional Transit (SACRT) provides public transportation within the project vicinity, offering a combination of advance-reservation and scheduled bus services from selected rural cities and communities to the Sacramento City urban area. The closest bus routes to the project area are Route 15 along Del Paso Boulevard to the south of the project, Route 13 along Garden Highway to the east of Northgate Boulevard and to the north of the project site, and Route 86 along Garden Highway to the west of Natomas Park Drive. (SACRT 2015).

RAILROADS

The Union Pacific Railroad operates a rail line located approximately 1,100 feet to the east of Site 18A.

3.16.2 DISCUSSION

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

Less-than-Significant Impact. The *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035* (Sacramento Area Council of Governments [SACOG] 2012), adopted in 2012, is the Federally mandated long-range planning document for identifying and programming roadway improvements throughout the region including Sacramento County. The City of Sacramento 2035 General Plan (2014) identifies estimated future travel demand and present goals, policies, and implementation programs for transportation systems and facilities within the City and its sphere of influence. The focus of these goals and policies is long-term development and design of transportation facilities, improvements to existing roadways, interagency coordination, and encouragement of alternative transportation (City of Sacramento 2009).

The Mobility Element of the City of Sacramento General Plan (adopted March 3, 2015) includes transportation-related goals and policies that establish measures of effectiveness for the performance of the local circulation system. However, most of the thresholds of the City's General Plan Mobility Element are not applicable to the proposed project given that the proposed project would only generate daily traffic during the construction period and construction-related trips would be dispersed throughout the proposed project area along the three roadways (Garden Highway, Northgate Boulevard, and Del Paso Boulevard). Only the following policy would apply to the proposed project:

- **M 4.2.1 Accommodate All Users.** The City shall ensure that all new roadway projects and any reconstruction projects designate sufficient travel space for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.

Construction of the proposed project would require hauling of equipment/materials and worker commute trips to and from the project area along local surface streets. Operations following project completion would not change compared to existing conditions. Therefore, an analysis of project-related traffic impacts using Level of Service (LOS) was not performed because LOS is primarily used for analyzing long-term effects of projects on traffic flow. This analysis used the recommended screening criterion from the Institute of Transportation Engineers

(ITE) (1988) for assessing the effects of construction projects that create temporary traffic increases. To account for the large percentage of heavy trucks associated with typical construction projects, ITE recommends a threshold level of 50 or more new peak-direction (one-way) trips during the peak hour. The culvert foundations would consist of approximately 240 cy of controlled low strength material (a sand-cement mixture). The culvert footings would consist of approximately 110 cy of cast-in-place concrete. The culvert headwalls and retaining walls would consist of approximately 100 cy of cast-in-place concrete. Assuming a capacity of 10 cy per load, approximately 45 round trip truck trips would be needed to deliver concrete to the site. It is anticipated that no more than 24 deliveries would be made on any given day during culvert and approach channel construction activities. Also, it is anticipated that approximately 150 to 200 haul truck round-trips would be needed to export the excess soil material over a 4-day period. In addition, construction workers would contribute commute trips to the local roadways. The project would require a maximum of only about 20 construction workers at any given time.

The daily truck volumes were estimated using the maximum number of haul trucks (150 to 200 round-trip) over a 4-day period for the proposed project. Truck trip estimates were based on the amount of material that would require removal and disposal, and the amount of new material that would be imported. This analysis assumes that construction activities would occur during a 10-hour work window each day and that construction trucks would operate throughout the day. Therefore, hourly numbers of haul trucks for the assigned route segments (see **Table 3.16-1**) were estimated based on an even distribution of truck trips throughout the 10-hour construction work window. Construction worker commute trips were only applied to peak hours in the morning and in the afternoon, assuming worker trips would occur once in the morning to get to the project site and once in the afternoon to leave the project site. Vehicle movements associated with the export and import of materials to and from Site 18A are shown in **Table 3.16-2**.

Trucks trips associated with import or removal of the required materials during construction of the proposed project would result in a total of up to approximately 50 truck trips per day in each direction (i.e., 100 one-way trips per day, assuming a passenger car equivalent [PCE] value of 2.0). Additionally, commuting by construction workers would result in approximately 20 additional total daily trips in each direction (i.e., 40 one-way trips per day) on the area roadways shown in **Table 3.16-1**.

As shown in **Table 3.16-2**, in total, activities associated with the proposed project may add as many as 140 total daily one-way trips to project area roadways over the course of the 10-hour work window. This would result in a maximum of 30 additional trips on area roadways during the peak hour (5 truck trips per hour both directions [10 trips per hour, assuming a PCE value of 2.0], and 20 worker trips per peak hour). Because the proposed project would not result in more than 50 new trips during the a.m. or p.m. peak hours, the proposed project is not anticipated to cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. Therefore, the proposed project would not result in substantial trip-generated traffic congestion. Also, construction-generated traffic would be temporary and therefore would not result in any long-term degradation in performance of any of the roadways in the vicinity of the proposed project. Therefore, the proposed project would not conflict with adopted applicable policies or plans related to the performance of the circulation system. This impact would be less than significant, and no mitigation would be required.

Table 3.16-2. Project Construction Vehicular Traffic Volumes									
				Volumes					
				Haul Truck Trips					
Roadway	From	To	Existing Peak	Total Truck Trips	Truck Trips Per Day	Truck Per hour	PCE per Hour	Workers per Peak-Hour	Total Per Peak-Hour
Del Paso Boulevard	Northgate Boulevard	Railroad Drive	849	200	50	5	10	20	30
Northgate Boulevard	Garden Highway	Del Paso Boulevard	2,122	200	50	5	10	20	30
Garden Highway	Truxel Road	Northgate Boulevard	2,303	200	50	5	10	20	30
Garden Highway	Natomas Park Drive	Truxel Road	1,778	200	50	5	10	20	30
Garden Highway	Interstate 5	Natomas Park Drive	2,024	200	50	5	10	20	30
Garden Highway	Gateway Oaks Drive	Interstate 5	1,692	200	50	5	10	20	30

Notes: PCE = Passenger Car Equivalent;
Source: Data modeled by AECOM in 2014

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

Less-than-Significant Impact. Operation of the proposed project would not substantially change from existing conditions, and therefore project operation would not result in conflicts with policies or programs supporting alternative transportation. Therefore, no impact from project operation would occur. Furthermore, the increased traffic resulting from project construction would be short-term and temporary. As discussed under item a) above, the project-related increase in traffic volumes along the affected roadways would be 30 vehicles per hour. This level of traffic activity would not degrade traffic operations along the roadways used by haul trucks and would be below the applicable threshold. Therefore, the proposed project would have a less-than-significant impact, and no mitigation would be required.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The project site is located approximately 4.5 miles east of the CHP Academy Airport. As noted in Section 3.12, “Noise,” the proposed project is located outside of the areas of influence for the CHP Academy Airport. Also, implementing the proposed project would not require the use of helicopters or any other equipment that would result in substantial safety risks by increasing air traffic levels or changing the location of air traffic. Therefore, no impact would occur, and no mitigation would be required.

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

Less-than-Significant Impact with Mitigation Measures Incorporated. Trucks delivering materials and removing material and debris, as well as project-related construction worker commute traffic, would be entering and exiting Site 18A along Del Paso Boulevard periodically and using local roadways. Slow-moving trucks

entering and exiting Site 18A could pose hazards to vehicles, pedestrians, and bicyclists on Del Paso Boulevard immediately adjacent to the project site. However, signage and flaggers would be deployed at this location reducing the potential hazard posed to other drivers, pedestrians, and bicyclists.

Pavement sections on the area roadways (Garden Highway, Northgate Boulevard and Del Paso Boulevard) are designed to carry high volumes of heavy-duty vehicles. The presence of heavy-duty trucks during construction could, however, accelerate wear and tear on the local roadways along the haul route. In addition to shortening the life of pavement sections, heavy-duty truck traffic could cause more immediate road damage such as cracks and potholes. Potential damage to pavement would increase traffic hazards on local roadways. Therefore, this impact would be potentially significant.

Mitigation Measure TRA-1: Repair Damaged Roadways and Bike Trails Following Construction.

Following completion of construction, SAFCA, its engineering design consultants, or its construction contractors will assess and repair any project-related damage to roadways and paved bicycle/pedestrian paths that were used during construction, including all project-related potholes, fractures, or other damages.

Timing: Following completion of the culvert replacement and swale modifications.

Responsibility: Sacramento Area Flood Control Agency.

Implementing Mitigation Measure TRA-1 would reduce the potentially significant impact associated with increased hazards due to a design feature or incompatible uses to a less-than-significant level because project-related damage to roadways and paved bicycle/pedestrian paths would be repaired following construction.

e) Result in inadequate emergency access?

Less-than-Significant Impact. Emergency access to roadways in the project area could be reduced by activities associated with the proposed project. Slow-moving trucks entering and exiting Site 18A along Del Paso Boulevard could delay the movement of emergency vehicles between Northgate Boulevard and Railroad Drive. However, flaggers would be deployed in this area. Because flaggers would be present to control truck traffic in the event of an emergency to allow unimpeded movement of emergency vehicles, this impact would be less-than-significant. No mitigation would be required.

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

Less-than-Significant Impact. Operation of the proposed project would not substantially change from existing conditions, and therefore project operation would not result in conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, and would not decrease the performance or safety of such facilities. However, some portions of the bike trail surrounding Site 18A would be affected during construction.

As described in Chapter 2, “Project Description,” the bike trail along the north and east sides of the embankment that surrounds the Site 18A basin would be closed to the public during construction. Haul trucks would use this portion of the bike trail to access the Site 18A work areas and equipment may be staged in these areas as well. The bike trail along the west and south sides of the embankment would remain open during construction. The approximately 280-foot-long portion of bike trail that extends from the southeast corner of Site 18A to the crossing at Del Paso Boulevard would remain open for joint use by the recreating public and haul trucks entering

and exiting Site 18A during construction. To protect the public during the off-haul and delivery operations, the Contractor would be required to place warning signage and deploy flaggers to intermittently hold public traffic while trucks are traversing the joint-use portion of the bike trail. Because connectivity of the bike trail would be maintained and the safety of the public would be protected at the Del Paso Boulevard crossing and joint-use portion of the bike trail during construction, this impact would be less than significant, and no mitigation would be required.

3.17 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with Federal, State, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.17.1 ENVIRONMENTAL SETTING

WATER SUPPLY

Surface water from the American and Sacramento Rivers and groundwater pumped from the North and South American Subbasins of the Sacramento Valley Groundwater Basin together make up the water supply source for the City of Sacramento. The City's water distribution system consists of a pipeline network in which surface water and groundwater are mixed. The City maintains 27 municipal groundwater wells, 16 water storage facilities, and an estimated 1,760 miles of system mains throughout the City. The City also maintains five clear wells at the Sacramento River Water Treatment Plant and Fairbairn Water Treatment Plant (City of Sacramento 2011).

There are no groundwater wells, water storage facilities, or other water supply or conveyance facilities on the project site. Two groundwater wells exist in the vicinity of the proposed project area, which are primarily used for irrigation. The wells are located adjacent to each other, and approximately 2.5 miles directly east of Site 18A, near Erikson Industrial Park and Interstate Business 80 (Capital City Freeway).

WASTEWATER

Wastewater generated within the City of Sacramento is collected and ultimately conveyed to the Sacramento Regional Wastewater Treatment Plant for treatment and disposal. The City of Sacramento Department of Utilities provides wastewater collection and conveyance to approximately 2/3 of the area within the City limits that is not served by the City's combined sewer system, while the Sacramento Area Sewer District (formerly County Services District 1) provides wastewater collection to the remaining portions of the City.

The closest City of Sacramento Department of Utilities' sewer mains are located within the commercial and residential areas east of Site 18A and within residential areas north of Site 18A, north of the Arden-Garden Connector. There are no wastewater collection and conveyance facilities within the project site.

STORMWATER DRAINAGE

Stormwater runoff within the City flows into either the City's CSS or into individual drainage pump stations located throughout the City. Six tributaries of the Sacramento River pass through and provide drainage for the City. Dry Creek, Magpie Creek, and Arcade Creek provide drainage for the northern portion of the City (north of the American River), and Morrison Creek, Elder Creek, and Laguna Creek provide drainage for the southern portion of the City, south of the American River. The City's stormwater drainage system includes approximately 45,000 storm drain inlets, an estimated 65 miles of canals, and over 100 pump stations.

NEMDC/Steelhead Creek is a drainage canal whose waters have been interacting with the Site 18A basin since the excavation of borrow material and installation of the culvert in 1996. NEMDC/Steelhead Creek provides drainage to agricultural areas of northern Sacramento County and a large, rapidly urbanizing metropolitan area, including Dry, Arcade, Robla and Magpie Creeks; and a large portion of the western Rio Linda and Elverta areas north of the confluence with Dry Creek up to Sankey Road. Stormwater drainage from NEMDC/Steelhead Creek flows passively into the Site 18A seasonal wetland through a relatively small (30-inch diameter) culvert located at the northwest corner of the basin. The culvert passes under the heavily used, paved American River Parkway bike trail and extends 170 feet from the basin to the left (south) bank of NEMDC/Steelhead Creek. During moderately high-flow conditions, water from the Sacramento and lower American River causes NEMDC/Steelhead Creek to backup and overflow into Site 18A through the culvert that connects NEMDC/Steelhead Creek to the Site 18A basin, and by overtopping of the surrounding low berm/bike trail embankment surrounding the Site 18A basin. The culvert also serves to direct waters back into NEMDC/Steelhead Creek as flood flows recede.

SOLID WASTE

Solid waste collection services in Sacramento, including residential and a small portion of commercial garbage pickup, recycling, and yard waste hauling, are provided by the City's Recycling and Solid Waste Division.

The primary location for disposal of solid waste for the City of Sacramento is the Sacramento County Kiefer Landfill located at 12701 Kiefer Boulevard, Sloughhouse, California. The landfill permits 10,815 tons per day and averages 6,300 tons per day. As of 2012, 305 acres of 660 available acres have been used and the landfill is expected to have capacity through 2065. Construction and demolition waste, which is collected by both the City's fleet and private companies, may also be disposed of at the Yolo County, Forward, and L and D Landfills. Yolo County Landfill permits 2,800 tons per day of solid waste disposal. Forward Landfill permits 8,668 tons per day. L and D Landfill permits 6665 tons per day. (City of Sacramento 2014)

3.17.2 DISCUSSION

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

No Impact. The proposed project would involve replacement of an existing culvert to more openly connect the Site 18A flood basin to NEMDC/Steelhead Creek and grading of existing interior drainage swales, thereby reducing the potential for fish stranding in the Site 18A basin. The proposed project would not generate wastewater or result in a change in the water quality of wastewater discharges at existing wastewater treatment facilities. Therefore, the proposed project would not cause or contribute to an exceedance of wastewater treatment requirements of the Central Valley RWQCB. There would be no impact and no mitigation would be required.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. See item a). The proposed project would require periodic irrigation during the first 5 years to support revegetation of disturbed areas and establishment of new plantings within and adjacent to the swales in the Site 18A basin. An estimated 840 gallons of water over a 7 month period would be required during the first year of irrigation. Irrigation requirements would likely to be less after the first year. Irrigation water would be supplied either by a temporary irrigation system that would pump water from NEMDC/Steelhead Creek or by water truck deliveries. Therefore, the proposed project would not require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, and there would be no impact and no mitigation would be required.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project would include construction of a larger (wider and higher) culvert to replace the existing culvert that connects NEMDC/Steelhead Creek with the Site 18A basin thereby improving connectivity of the floodplain. NEMDC/Steelhead Creek is a drainage canal whose waters have been interacting with the Site 18A basin since the excavation of borrow material and installation of the culvert in 1996. The Site 18A basin can hold a small fraction of the total NEMDC/Steelhead Creek capacity, and the volume of the basin would remain unchanged. Therefore, the proposed project would not affect other storm drainage or municipal infrastructure, and there would be no impact and no mitigation would be required.

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

No Impact. See item b). Existing water sources would be sufficient to supply irrigation needs of the proposed project. New or expanded entitlements would not be needed. There would be no impact and no mitigation would be required.

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

No Impact. See item a). The proposed project would not generate wastewater, and therefore, would not create additional demand for wastewater treatment. There would be no impact and no mitigation would be required.

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

Less-than-Significant Impact. The proposed project would cause a temporary increase in the generation of solid waste from construction activities. Construction of the temporary asphalt concrete bike trail needed to provide access to the northwest corner of Site 18A would require approximately 10 cubic yards of asphalt concrete. After replacement of the culvert is completed, the temporary asphalt concrete bike trail would be removed. Kiefer Landfill is the primary location for disposal of solid waste for the City of Sacramento. Construction waste could also be sent to the L and D, Yolo County, Central, or Forward Landfills. As described in the "Environmental Setting," landfill capacities at these sites would be large enough to serve the short-term construction-related disposal needs of the proposed project. Alternatively, the material would be trucked to a recycling facility, which would result in no use of landfill capacity. Therefore, this impact would be a less than significant and no mitigation would be required.

g) Comply with Federal, State, and local statutes and regulations related to solid waste?

No Impact. See item f). The transportation and disposal of solid waste would be in accordance with applicable Federal, State, and local statutes and regulations. There would be no impact and no mitigation would be required.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Authority: Public Resources Code Sections 21083, 21083.5.

Reference: Government Code Sections 65088.4.
Public Resources Code Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

3.18.1 DISCUSSION

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated. The analysis conducted in this IS concludes that the proposed project with mitigation would not have a significant effect on the physical environment.

As evaluated in Section 3.4, "Biological Resources," the proposed project could have potential adverse effects on special-status wildlife, nesting birds, and sensitive habitats. However, with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4 included in Section 3.4, these impacts would be reduced to a less-than-significant level.

As evaluated in Section 3.5, “Cultural Resources,” the proposed project would have no impact on examples of major periods of California history or prehistory. However, the proposed project would have the potential to adversely affect soils and water quality, increase noise levels and traffic hazards, and expose the public and the environment to hazards materials and fires.

Section 3.6.1(b) provides mitigation for potentially significant impacts associated with temporary and short-term construction-related erosion. Implementation of Mitigation Measures GEO-1and HYD-1, included in Sections 3.6 and 3.9, respectively, would reduce potential erosion impacts to a less-than-significant level. Section 3.8(a), 3.8(b), and 3.8(h) provide mitigation for potentially significant impacts related to exposure of the public or the environment to hazardous materials or fires. Implementation of Mitigation Measures HAZ-1, and HAZ-2, and Mitigation Measure HYD-1, included in Sections 3.8, “Hazards and Hazardous Materials and 3.9, respectively, would reduce these potential impacts to a less-than-significant level. Section 3.9(a) and 3.9(f) provide mitigation for potentially significant impacts to water quality. Implementation of Mitigation Measure HYD-1, included in Section 3.9, “Hydrology and Water Quality,” would reduce these potential impacts to a less-than-significant level. Section 3.12(a) and 3.12(d) provide mitigation for potentially significant temporary and short-term construction-related noise impacts. Implementation of Mitigation Measures NOI-1, included in Section 3.12, “Noise,” would reduce potential construction-related traffic noise impacts to a less-than-significant level. Section 3.16(e) provides mitigation for potentially significant construction-related traffic hazards. Implementation of Mitigation Measures TRA-1, included in Section 3.16, “Transportation/Traffic,” would reduce these potential impacts to a less-than-significant level.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less-than-Significant Impact. Construction of the proposed project would result in temporary and short-term impacts that would be primarily limited to the project site and immediate vicinity. Although impacts related to resources such as air quality, greenhouse gas emissions would contribute to regional impacts, these impacts when combined with other past, present, and reasonably foreseeable future projects in the project vicinity would not be cumulatively considerable, primarily because of the relative small size of the proposed project. Also, as noted in Section 3.3, “Air Quality,” construction-generated and operational emissions would not exceed applicable thresholds established by the Sacramento Metropolitan Air Quality Management District. Thus, the proposed project would not be expected to result in a cumulatively considerable incremental contribution to the significant cumulative impact associated with air pollutant emissions.

As discussed in this IS, the proposed project would result in less-than-significant impacts or no impacts on the following areas: aesthetics, agriculture and forestry resources, air quality, cultural resources, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, and utilities and service systems. Furthermore, mitigation measures have been included in this IS that would reduce impacts to a less-than-significant level in the following areas: biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic. Therefore, all impacts would be less than significant or would be reduced to a less-than-significant level through incorporation of required mitigation measures, and the proposed project would not make a cumulatively considerable incremental contribution to significant cumulative adverse impacts on those resource areas. The incremental effects of the

proposed project would not be cumulatively considerable when viewed in connection with the effects of past, present, and reasonably foreseeable future projects. This impact would be less than significant.

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

Less-than-Significant Impact. As discussed throughout this IS, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. The proposed project is intended to reduce the potential for fish stranding by improving drainage, flow path, and connectivity between Site 18A and the Natomas East Main Drainage Canal/Steelhead Creek; improve accessibility to floodplain rearing habitat; and enhance ecosystem function through improving habitat quality and diversity, including improvements to soil conditions to boost growth potential of riparian and seasonal wetland vegetation. Mitigation measures are provided to reduce the proposed project's potentially significant effects on biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic to a less-than-significant level. Thus, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. This impact would be less than significant.

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No references cited.

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EXHIBIT B

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Response to Comments and Summary of Text Changes

Comments Received

The Sacramento Area Flood Control Agency (SAFCA) circulated the Initial Study/Proposed Mitigated Negative Declaration (IS/MND) for the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project for a 30-day public review period from April 2, 2015 to May 1, 2015. At the close of the public review period, four comment letters had been received. These letters are attached. The following summarizes responses to the comments made in these letters.

- Native American Heritage Commission – This letter was forwarded to SAFCA by the Governor's Office of Planning and Research at the close of the IS/MND review period. However, it had been written in response to consultation initiated by AECOM during the preparation of the IS/MND. The consultation did not result in the identification of any cultural place that would be affected by the project.

- Central Valley Regional Water Quality Control Board (CVRWQCB) – Before construction begins, SAFCA will prepare a Storm Water Pollution Prevention Plan (SWPPP) and obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit Order No. 2009-009-DWQ). SAFCA will also obtain a Water Quality Certification from CVRWQCB and a Nationwide Permit (NWP 27) pursuant to Section 404 of the Clean Water Act from the U.S. Army Corps of Engineers (USACE) prior to construction. At this time, it is not anticipated that dewatering would be necessary, but should it be required, SAFCA will obtain coverage under the General Order for Dewatering and Other Low Threat Discharges to Surface Waters (Low Threat General Order) prior to such activity.

- Sacramento County Department of Transportation (SACDOT) – SAFCA will coordinate with SACDOT staff in implementing the traffic safety and control measures as described on page 2-6 of the IS. SAFCA will also coordinate with the City of Sacramento in evaluating preproject roadway conditions and postproject-related damage to roadways to assess needed repairs.

- Sacramento Municipal Utility District (SMUD) – SAFCA has determined through correspondence with SMUD's Real Estate Services Office that the proposed project would not affect lands within SMUD's transmission line easement. The proposed project would affect lands within the Western Area Power Administration's (WAPA) transmission line easement. SAFCA will coordinate with WAPA prior to the commencement of construction to determine the exact location of their easement, and will obtain WAPA permission if appropriate for project activities that may occur within the WAPA easement.

  SAFCA has also made text changes to address potential effects of the proposed project-related effects to transmission line easements. No other utilities that span over the southwest portion of

the project site are located in areas that would be affected by the proposed project. No permanent electrical power is required for the proposed project, and climate change issues are addressed in the greenhouse gas emissions analysis in Section 3.7 of the IS.

Summary of Text Changes to the Initial Study

This errata presents changes to the IS resulting from comments received and/or staff initiated text changes. New text is shown in a double underline and text to be deleted is shown in ~~strike out~~. The changes identified below do not result in new unavoidable significant impacts that cannot be reduced to less-than-significant levels, or result in new mitigation measures that would result in new significant impacts that have not been previously disclosed to the public, or that would result in new unavoidable significant impacts.

Page NOI-1, last sentence in fifth paragraph (Staff initiated):

> All written comments must be received by 5 p.m. on ~~Thursday~~Friday, ~~April 30~~May 1, 2015.

Page 2-3 (in response to SMUD comment letter):

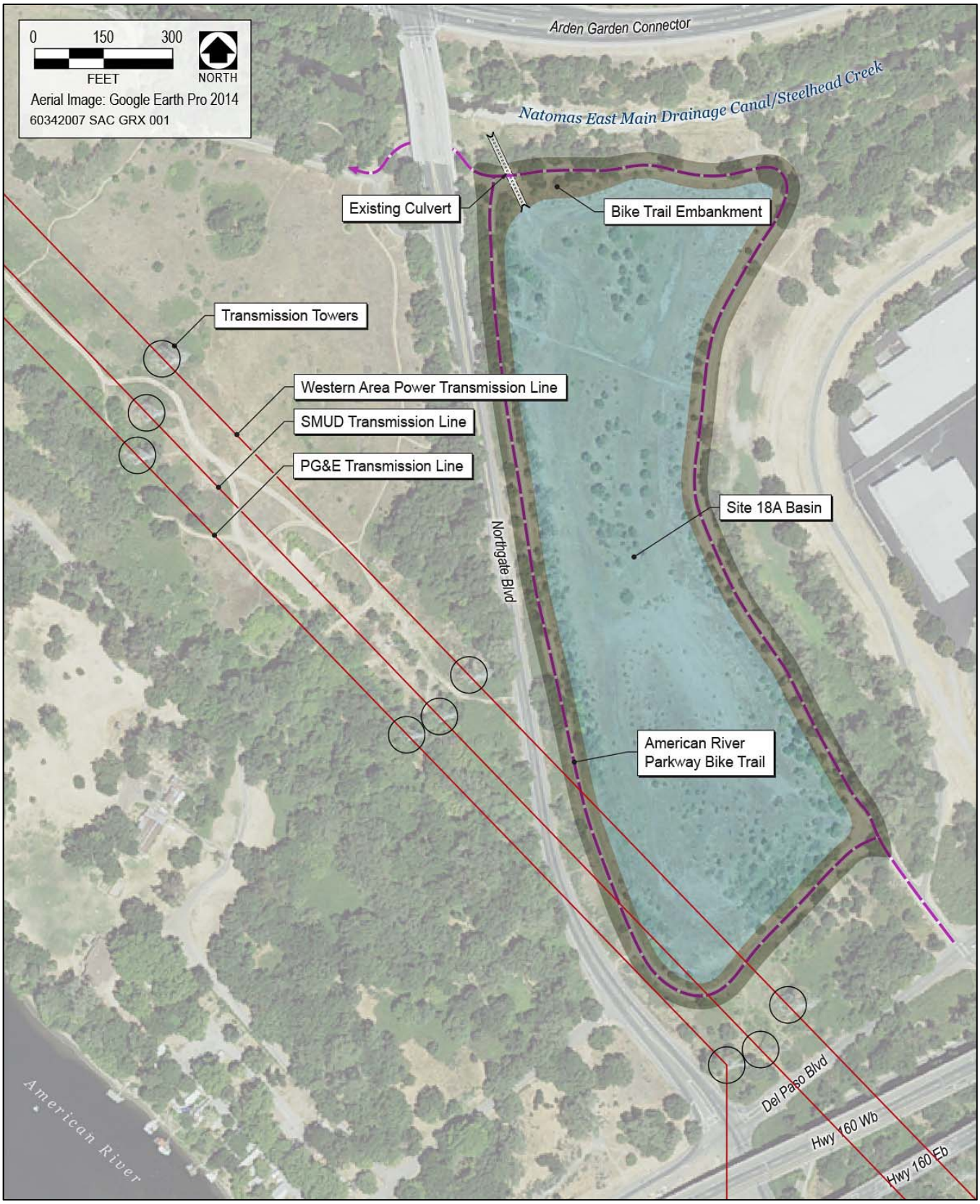
> **Exhibit 2-2**, "Site 18A Culvert Replacement and Fish Passage Enhancement Project Site Map" has been revised to show the location of the overhead transmission lines and the transmission line towers.

Page 2-5 (in response to SMUD comment letter):

> **Exhibit 2-3**, "Construction Plan View" has been revised to show the location of the overhead transmission lines and the transmission line towers.

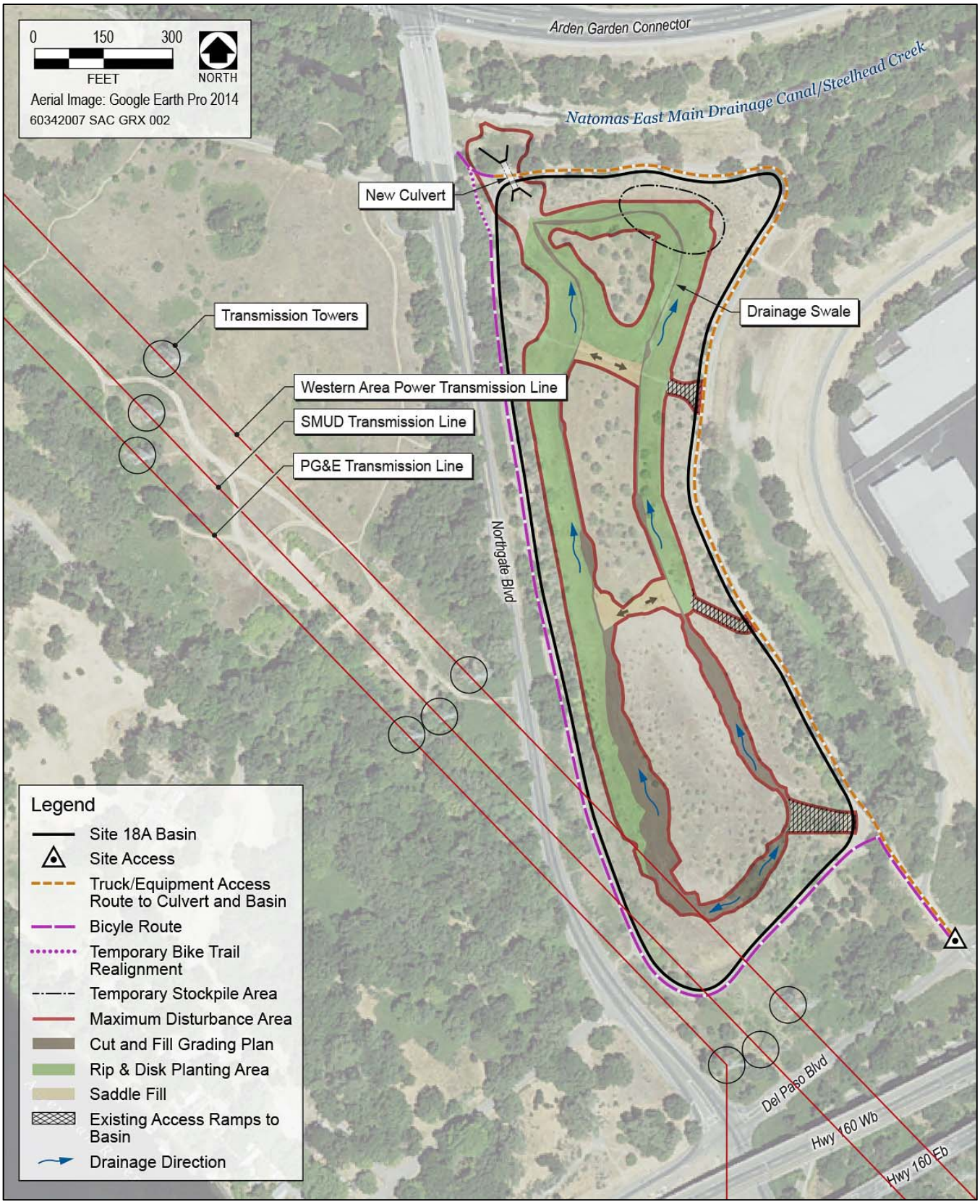
Page 3-61 after third paragraph (In response to SMUD comment letter):

Several overhead transmission lines span over the southwest portion of Site 18A with transmission line towers located on both the south and west sides of the basin (see **Exhibit 2-3)**. The proposed project would only affect land within the Western Area Power Administration (WAPA) transmission line easement (Del Rio, pers. comm., 2015). The proposed project would not affect WAPA from an electrical clearance point of view. If grading and planting activities are proposed within the WAPA transmission easement, these activities may require permission from WAPA. SAFCA would obtain permission for activities within the easement if required.



Source: Adapted by AECOM in 2015

Exhibit 2-2. Site 18A Culvert Replacement and Fish Passage Enhancement Project Site Map



Source: Adapted by AECOM in 2015

Exhibit 2-3. Construction Plan View

Page 3-64 and 3-64 (In response to SMUD comment letter):

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project?

~~No~~Less-Than-Significant Impact. SAFCA, acting as a joint powers authority pursuant to the Joint Exercise of Power Act (California Government Code Section 65000), must consider relevant Federal and State land use policies, but is exempt from plans, policies, and regulations adopted by local agencies (California Government Code Section 53090). Nevertheless, the following analysis considers the proposed project's consistency with relevant adopted local plans and policies to describe how local agencies address resource issues within and in the vicinity of Site 18A.

As stated previously, there are policies from the adopted City of Sacramento General Plan regarding land use planning applicable to the proposed project. Site 18A is designated by the City General Plan as Recreation and zoned American River Parkway-Floodplain. Implementing the proposed project would involve replacing the existing culvert, regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A, and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities. These improvements would occur on the existing seasonally flooded wetland and riparian habitat area and would not introduce land uses or result in other changes in land use that would cause inconsistencies with the Recreation land use designation and American River Parkway-Floodplain zoning code.

Site 18A is within the American River Parkway and would be subject to the American River Parkway Plan. Policies 3.2, 3.7, and 3.11 of the American River Parkway Plan support the protection, enhancement, and expansion of native habitats that benefit fish species, including riparian, woodland, and in-channel habitat that provides important shaded riverine aquatic habitat necessary for spawning and rearing of fish species (see Section 3.5, "Biological Resources," for further discussion). Habitat enhancement activities would focus on improving soil conditions to support revegetation of disturbed areas; improving existing wetland and riparian habitat quality and variability by planting additional seasonal wetland plants and riparian scrub; and increasing seasonally submerged vegetation, overhead cover, and fish rearing and feeding habitat. Improved floodplain-creek connectivity and enhancement of vegetative cover would likely improve fish rearing habitat, reduce fish stranding, and facilitate juvenile salmonid outmigration. Therefore, implementing the proposed project would be consistent with the American River Parkway Plan.

Consistency issues with applicable land use plans and policies would be issues related to land use regulations and not to a physical environmental impact of project implementation. Therefore, conflicts with applicable adopted land use plans and policies would not be considered a significant impact under CEQA, in and of itself. Specific impacts associated with other resource and issue areas are addressed in each technical section of this IS/MND as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental impacts that could result from implementing the proposed project.

For the reasons described above, the proposed project would not conflict with City of Sacramento General Plan policies, land use designations, or zoning, or with American River Parkway Plan policies.

A WAPA transmission line easement traverses, and its overhead transmission lines span over the southwest portion of proposed project footprint on Site 18A. The transmission line towers are outside the

basin to the south and west. While the proposed project would not affect WAPA from an electrical clearances point of view, if grading and planting activities are proposed within the transmission line easement, these activities may require permission from WAPA. Because permission would be requested for modifications within the WAPA easement if needed, any grading would be minor, and no trees or shrubs would be planted in the easement, the project is expected to comply with WAPA requirements without substantial alteration. Therefore, ~~no~~the impact would ~~occur~~be less than significant, and no mitigation would be required.

Final

Mitigation Monitoring and Reporting Program for the

Site 18A Culvert Replacement and Fish Passage Enhancement Project

SCH#2015042009

Prepared for:

SAFCA
Sacramento Area Flood Control Agency

AECOM

May 8, 2015

Final

Mitigation Monitoring and Reporting Program for the

Site 18A Culvert Replacement and Fish Passage Enhancement Project

SCH#2015042009

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ACRONYMS AND OTHER ABBREVIATIONS

BMP	best management practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CWA	Clean Water Act
IS/MND	Initial Study/Mitigated Negative Declaration
NEMDC	Natomas East Main Drainage Canal
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan

MITIGATION MONITORING AND REPORTING PROGRAM

In accordance with the California Environmental Quality Act (CEQA), Sacramento Area Flood Control Agency (SAFCA) prepared an Initial Study/Proposed Mitigated Negative Declaration (IS/MND) to provide the public and responsible and trustee agencies with information about the potential environmental effects associated with the construction and operation of the Site 18A Culvert Replacement and Fish Passage Enhancement Project (hereafter referred to as the "proposed project").

The IS/MND concludes that implementation of the proposed project would generate significant and potentially significant adverse environmental impacts. For all potential impacts, the IS/MND prescribes feasible mitigation capable of reducing these impacts to less-than-significant levels.

Section 21081.6 of the California Public Resources Code and California Code of Regulations (CCR) Sections 15091(d) and 15097 of the State CEQA Guidelines, require a public agency to adopt a reporting and monitoring program for changes to the project that it has adopted and incorporated into the project, at the time of approval, to mitigate, avoid, or reduce significant effects on the physical environment. These conditions are also referred to as mitigation measures.

The Mitigation Monitoring and Reporting Program is to be used by SAFCA to ensure that adopted mitigation measures identified in the IS/MND are implemented and that their implementation is documented. The Mitigation Monitoring and Reporting Program is presented in tabular format.

The table columns contain the following information:

Mitigation Number: Lists the mitigation measures by number, as designated in the IS/MND.

Mitigation Measure: Provides the text of the mitigation measures, each of which has been adopted and incorporated into the project.

Timing/Schedule: Lists the time frame in which the mitigation measure is expected to take place.

Implementation Responsibility: Identifies the entity responsible for complying with the requirements of the mitigation measure.

Completion of Implementation: SAFCA is responsible for reporting on implementation of the mitigation measures. The "Action" column is to be used by SAFCA to describe the action(s) taken to complete implementation. The "Date Completed" column is to be used by SAFCA to indicate when implementation of the mitigation measure has been completed. SAFCA, at its discretion, may delegate implementation responsibility or portions thereof to qualified consultants or contractors.

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
Biological Resources					
BIO-1	**Conduct Pre-construction Survey for Woolly Rose-Mallow and Implement Impact Avoidance and Minimization Measures.** SAFCA shall implement the following measures to avoid and minimize adverse impacts to woolly rose-mallow. a) Before construction activities begin, a focused survey will be conducted by a qualified botanist for woolly rose-mallow shrubs that may be present in or within 50 feet of areas where ground disturbance would occur. To the extent feasible, depending on timing of project implementation, surveys will be conducted during the blooming period for this species (June–September). b) If woolly rose-mallow is detected, areas where the species occurs will be fenced for complete avoidance during project implementation, to the extent feasible. c) If woolly rose-mallow is present in areas where disturbance cannot be avoided, a qualified botanist will assess the feasibility of salvaging and transplanting individuals as part of the revegetation component of the project. If such actions are deemed feasible, they will be implemented under the direction of a qualified botanist and in coordination with California Department of Fish and Wildlife (CDFW).	Before construction activities begin and during revegetation.	SAFCA		
BIO-2	**Avoid and Minimize Disturbance of Special-status Fish in Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek.** SAFCA shall implement the following measures to avoid and minimize disturbance to special-status fish in NEMDC/Steelhead Creek. a) No grading work within the existing floodway will occur during the designated flood season (i.e., November 1 to April 15), and work will not begin until evaluation of upstream conditions indicate that inundation of the construction area is unlikely to occur. b) A worker awareness training program will be conducted for construction crews before the start of construction activities and as needed when new personnel begin work on the project. The program will include a brief overview of sensitive fisheries and aquatic resources (including riparian habitat to be preserved) on the project site, measures to minimize impacts on those resources, and conditions of relevant regulatory permits.	Before, during, and as needed after construction activities.	SAFCA		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	c) Any in-water construction activities (though not currently anticipated) will be conducted during months when special-status fish species/ sensitive life stages are least likely to be present or less susceptible to disturbance (e.g., July 1 to October 31). d) All riparian vegetation that is not specified to be impacted within the grading area will be identified and fenced using orange construction fencing or similar materials. Sensitive habitat information will be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.				
BIO-3	**Conduct Pre-construction Surveys and Minimize Disturbance and Potential Loss of Active Nests of Special-Status Birds.** a) SAFCA shall implement the following measures to minimize disturbance and potential loss of active nests of special-status birds. b) Focused surveys for Swainson's hawk and other nesting raptors will be conducted by a qualified biologist before on-site project activities begin. To the extent feasible, surveys for Swainson's hawk will follow guidelines provided in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). A minimum of one survey will be conducted no more than 14 days before beginning project activities that are conducted during the nesting season (March 15–August 31). Surveys for Swainson's hawk nests will include all accessible areas of suitable nesting habitat located within 0.25 mile of areas subject to project disturbance, and surveys for other raptors will include accessible suitable nesting habitat within 500 feet of project disturbance. c) Surveys for Modesto song sparrow will include suitable habitat east of Northgate Boulevard and within up to 200 feet of areas of project disturbance, depending on the disturbance level. Surveys will be conducted within 7 days before on-site project activities begin in a given area during the migratory bird nesting season (March 1–August 31).	Before and during construction activities.	SAFCA		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	d) If active nests are found, appropriate buffers will be established and maintained around the nest sites to avoid nest failure resulting from project activities. The appropriate size and shape of the buffers will be determined by a qualified biologist and may vary depending on the species, nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity will begin within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.				
BIO-4	**Avoid and Minimize Disturbance of Riparian Vegetation and Develop Restoration Plan to Compensate for Tree Loss.** SAFCA shall implement the following measures to avoid and minimize disturbance of riparian vegetation and trees. a) If canopy and/or root pruning, cabling, or other corrective measures for preserved trees are necessary, such measures will be conducted as specified by a Certified Arborist and will conform to the pruning standards of the International Society of Arboriculture. b) Ground disturbance activity, equipment, and vehicles will not encroach within 1 foot of the drip line of trees to be preserved, to the extent feasible. The dripline area will be protected with high visibility fencing or tape before any ground disturbance or movement or storage of heavy equipment and other vehicles occurs. All fencing/tape will be removed following construction and before revegetation plantings are installed. c) Excavating within a distance of half the drip line beyond the drip line will be avoided whenever practicable. If necessary, any authorized fill or excavation within this area will be supervised by a Certified Arborist. d) To prevent root tearing and mangling by heavy equipment, hand digging will be conducted around roots in the vicinity of major trees to be preserved before pruning of roots greater than 2-inch diameter. Severed roots larger than 2 inches in diameter will be pruned or trimmed and covered with earth as soon as possible.	Before, during, and after construction and revegetation activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	e) If construction activities other than excavation are required within the dripline of preserved trees, a 6-inch layer of mulch or shredded wood material will be laid on top of the soil to protect the soil and roots (3/4-inch plywood may be used if mulch is not feasible). Mulch and/or plywood will be removed after construction is complete. f) Removal of protected trees and other riparian vegetation (e.g., shrubs) will be compensated by planting appropriate species as part of the revegetation component of the project. Replacement plantings will be provided in accordance with City and County ordinances. Other riparian vegetation will be compensated at a 1:1 replacement ratio, based on the acreage removed. Revegetation efforts will be implemented as described in the restoration plan that has been prepared for the project. This will ensure adequate plantings of appropriate species are installed, maintained, and monitored to meet replacement requirements and compensate for removal of protected trees and other riparian vegetation.				
Geology and Soils					
GEO-1	**Prepare and Implement a Grading and Erosion Control Plan.** a) Before earthmoving activities commence, SAFCA shall prepare and implement a grading and erosion control plan. The grading and erosion control plan will be prepared and implemented before on-site grading activities begin. The plan will be consistent with the State's National Pollutant Discharge Elimination System permit, and will include site-specific grading associated with culvert replacement and restoration activities. b) The aforementioned plan will include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures; a description of measures designed to control dust and stabilize disturbed soils within the construction-site; and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include the use of berms, straw cover, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion.	Before and during construction activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
Hazards and Hazardous Materials					
HAZ-1	**Prepare and Implement a Construction Fire Prevention Plan.** A fire prevention plan will be prepared and implemented by SAFCA or prepared by the construction contractor for review and approval by SAFCA in coordination with the appropriate emergency service and/or fire suppression agencies of the applicable local or State jurisdictions before the start of any construction activities. The plan will describe fire prevention and response methods, including fire precautions, requirements for spark arrestors on equipment, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. When heavy equipment is used for construction during the dry season, a water truck shall be maintained on the construction site. Materials and equipment required for implementation of the plan will be available on the construction site. Training will be provided to all construction personnel regarding fire safety, and all personnel will be made familiar with the contents of the plan before the start of construction activities.	Before and during construction activities.	SAFCA.		
Hydrology and Water Quality					
HYD-1	**Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices.** a) During the development of improvement plans, SAFCA will consult with the Central Valley Regional Water Quality Control Board (RWQCB) and Sacramento County. The purpose of the consultation will be to acquire the regulatory approvals necessary to obtain a Clean Water Act (CWA) Section 401 Water Quality Certification, and any other necessary waivers under the Porter-Cologne Water Quality Control Act. b) SAFCA will also prepare and implement the appropriate storm water pollution prevention plan (SWPPP) or storm water management plan (SWMP) to prevent and control pollution and to minimize and control runoff and erosion. The SWPPP or SWMP will identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the best management practices (BMPs) that will be employed to control pollutant discharge. Construction techniques that will be identified and implemented to reduce the potential for runoff may include minimizing site disturbance,	Before and during construction activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP or SWMP will include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking and dust generation by construction equipment. No disturbance of surfaces will occur between October 15 and April 15 without erosion control measures in place. c) The SWPPP or SWMP will also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and will identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP or SWMP will also identify emergency procedures for responding to spills. d) The BMPs presented in either document shall be clearly identified and maintained in good working condition, with sufficient backup stock on-site during all site work and construction activities. The construction contractor will retain a copy of the approved SWPPP or SWMP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the Central Valley RWQCB, if necessary.				
Noise					
NOI-1	**Implement Measures to Reduce Construction Noise Effects.** SAFCA shall require that its engineering design consultants and construction contractors implement the following measures to avoid and minimize construction traffic noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control. To the extent feasible and practicable, the primary construction contractors shall employ noise-reducing construction practices such that noise from construction complies with applicable noise-level rules, regulations, and ordinances that apply to the work, including the noise standards established	During construction activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	for non-transportation noise sources by the applicable agencies (City of Sacramento), depending on the jurisdictional location of the affected receptor(s). Measures that shall be used to limit noise shall include the following: a) Prohibit use of materials and equipment deliveries prior to 7 a.m. and after 6 p.m., Monday through Saturday; and prior to 9 a.m. and after 6 p.m., on Sunday. b) Establish and enforce construction site and haul road speed limits. c) Route construction-related truck traffic along roadways that will cause the least disturbance to residents. d) Use high-grade engine exhaust silencers and engine-casing sound insulation. e) Restrict the use of bells, whistles, alarms, and horns to safety-warning purposes.				
Transportation/Traffic					
TRA-1	**Repair Damaged Roadways and Bike Trails Following Construction.** Following completion of construction, SAFCA, its engineering design consultants, or its construction contractors will assess and repair any project-related damage to roadways and paved bicycle/pedestrian paths that were used during construction, including all project-related potholes, fractures, or other damages.	Following completion of the culvert replacement and swale modifications.	SAFCA.		

REFERENCES

Swainson's Hawk Technical Advisory Committee. 2000 (May 31). *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* Available: https://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html. Accessed March 9, 2015.

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RESOLUTION NO. 2015-057
Adopted by the Sacramento Area Flood Control Agency

ADOPTING THE MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SITE 18A CULVERT REPLACEMENT AND FISH PASSAGE ENHANCEMENT PROJECT AND APPROVING THE PROJECT

WHEREAS, the Sacramento Area Flood Control Agency (SAFCA) is the lead agency for the Site 18A Culvert Replacement and Fish Passage Enhancement Project (Project); and

WHEREAS, the Project consists of replacing a culvert from the Site 18A seasonally flooded habitat area in the American River Parkway to Steelhead Creek/NEMDC to reduce the potential for fish entrapment, including listed steelhead and Chinook salmon; and

WHEREAS, in order to comply with the requirements of the California Environmental Quality Act (CEQA), SAFCA has prepared an Initial Study/Mitigated Negative Declaration (IS/MND) that evaluates the environmental effects of the Project; and

WHEREAS, the IS/MND, which is attached hereto as Exhibit A, was circulated for public review from April 2, 2015 through May 1, 2015; and

WHEREAS, the IS/MND concluded that the Project would not result in significant environmental effects on aesthetics, agricultural and forestry resources, air quality, cultural resources, greenhouse gas emissions, land use and planning, minerals, population and housing, public services, recreation, and utility and service systems; and

WHEREAS, the IS/MND concluded that significant environmental effects on biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation/traffic would be avoided or reduced to less-than-significant levels by mitigation measures identified in the IS/MND: and

WHEREAS, the comments received on the IS/MND, along with responses to these comments, are attached hereto as Exhibit B; and

WHEREAS, the IS/MND together with the Mitigation Monitoring and Reporting Program attached hereto as Exhibit C constitute the Final Mitigated Negative Declaration (Final MND); and

WHEREAS, the Board has considered the Final MND together with the comments received and the responses to those comments; and

WHEREAS, the significant environmental effects identified in the Final MND can be reduced to a less-than-significant level or avoided by mitigation measures identified in the Final MND.

NOW, THEREFORE, BE IT RESOLVED BY THE SACRAMENTO AREA FLOOD CONTROL AGENCY BOARD OF DIRECTORS THAT:

1. The Board of Directors has independently considered the IS/MND (attached hereto as Exhibit A) and the comments received on the IS/MND as set forth in Exhibit B, and has considered the information contained therein prior to acting on the proposed Project.

2. The Board of Directors finds that the comments received do not require any major revisions to the IS/MND due to new or substantially more severe significant effects on the environment.

3. The Board of Directors hereby find that the IS/MND was prepared, published, circulated and considered in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, constitutes an adequate, accurate, objective, and complete Mitigated Negative Declaration in accordance with the requirements of CEQA and the State CEQA Guidelines, and reflects the independent judgment and analysis of the Board of Directors.

4. The Board of Directors finds that, on the basis of the whole record before it, there is no substantial evidence that the Project will have a significant effect on the environment.

5. The Board of Directors hereby adopts the MND for the Site 18A Culvert Replacement and Fish Passage Enhancement Project.

6. The Board of Directors hereby adopts and incorporates into the Site 18A Culvert Replacement and Fish Passage Enhancement Project all of the mitigation measures identified in the IS/MND.

7. The Board of Directors hereby adopts the Mitigation Monitoring Program for the Project, attached hereto as Exhibit C.

8. SAFCA, located at 1007-7th Street, 7th Floor, Sacramento, CA 95814, shall be the custodian of the documents which constitute the record of proceedings upon which this decision is based.

9. The Board of Directors hereby approves the Site 18A Culvert Replacement and Fish Passage Enhancement Project.

ON A MOTION BY Director Serna, seconded by Director Harris, the foregoing resolution was passed and adopted by the Board of Directors of the Sacramento Area Flood Control Agency, this 21st day of May 2015, by the following vote, to wit:

AYES:	Directors:	Barandas, Harris, HOlloway, LeVake, MacGlashan, Nottoli, Peters, Serna, Shah and Shiels
NOES:	Directors:	(None)
ABSTAIN:	Directors:	(None)
RECUSE:	Directors:	(None)
ABSENT:	Directors:	Ashby, Jennings and Kennedy

Don Nottoli

Chair of the Board of Directors of the
Sacramento Area Flood Control Agency

(SEAL)

ATTEST:

Lynnette Russell

Clerk of the Board of Directors

PBlr\rs.doc
Attachment(s)

EXHIBIT A

Final

Initial Study/Mitigated Negative Declaration

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Prepared for:

SAFCA
Sacramento Area Flood Control Agency

THIS DOCUMENT IS AVAILABLE IN ITS ENTIRETY ON SAFCA'S WEBSITE AT: http://www.safca.org/Protection/NR_Documents/CEQA_18A_Final_IS_MND_Comments.pdf

AECOM

April 1, 2015

EXHIBIT B

Site 18A Culvert Replacement and Fish Passage Enhancement Project

Response to Comments and Summary of Text Changes

Comments Received

The Sacramento Area Flood Control Agency (SAFCA) circulated the Initial Study/Proposed Mitigated Negative Declaration (IS/MND) for the proposed Site 18A Culvert Replacement and Fish Passage Enhancement Project for a 30-day public review period from April 2, 2015 to May 1, 2015. At the close of the public review period, four comment letters had been received. These letters are attached. The following summarizes responses to the comments made in these letters.

- Native American Heritage Commission – This letter was forwarded to SAFCA by the Governor's Office of Planning and Research at the close of the IS/MND review period. However, it had been written in response to consultation initiated by AECOM during the preparation of the IS/MND. The consultation did not result in the identification of any cultural place that would be affected by the project.

- Central Valley Regional Water Quality Control Board (CVRWQCB) – Before construction begins, SAFCA will prepare a Storm Water Pollution Prevention Plan (SWPPP) and obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit Order No. 2009-009-DWQ). SAFCA will also obtain a Water Quality Certification from CVRWQCB and a Nationwide Permit (NWP 27) pursuant to Section 404 of the Clean Water Act from the U.S. Army Corps of Engineers (USACE) prior to construction. At this time, it is not anticipated that dewatering would be necessary, but should it be required, SAFCA will obtain coverage under the General Order for Dewatering and Other Low Threat Discharges to Surface Waters (Low Threat General Order) prior to such activity.

- Sacramento County Department of Transportation (SACDOT) – SAFCA will coordinate with SACDOT staff in implementing the traffic safety and control measures as described on page 2-6 of the IS. SAFCA will also coordinate with the City of Sacramento in evaluating preproject roadway conditions and postproject-related damage to roadways to assess needed repairs.

- Sacramento Municipal Utility District (SMUD) – SAFCA has determined through correspondence with SMUD's Real Estate Services Office that the proposed project would not affect lands within SMUD's transmission line easement. The proposed project would affect lands within the Western Area Power Administration's (WAPA) transmission line easement. SAFCA will coordinate with WAPA prior to the commencement of construction to determine the exact location of their easement, and will obtain WAPA permission if appropriate for project activities that may occur within the WAPA easement.

  SAFCA has also made text changes to address potential effects of the proposed project-related effects to transmission line easements. No other utilities that span over the southwest portion of

the project site are located in areas that would be affected by the proposed project. No permanent electrical power is required for the proposed project, and climate change issues are addressed in the greenhouse gas emissions analysis in Section 3.7 of the IS.

Summary of Text Changes to the Initial Study

This errata presents changes to the IS resulting from comments received and/or staff initiated text changes. New text is shown in a double underline and text to be deleted is shown in ~~strike out~~. The changes identified below do not result in new unavoidable significant impacts that cannot be reduced to less-than-significant levels, or result in new mitigation measures that would result in new significant impacts that have not been previously disclosed to the public, or that would result in new unavoidable significant impacts.

Page NOI-1, last sentence in fifth paragraph (Staff initiated):

> All written comments must be received by 5 p.m. on ~~Thursday~~Friday, ~~April 30~~May 1, 2015.

Page 2-3 (in response to SMUD comment letter):

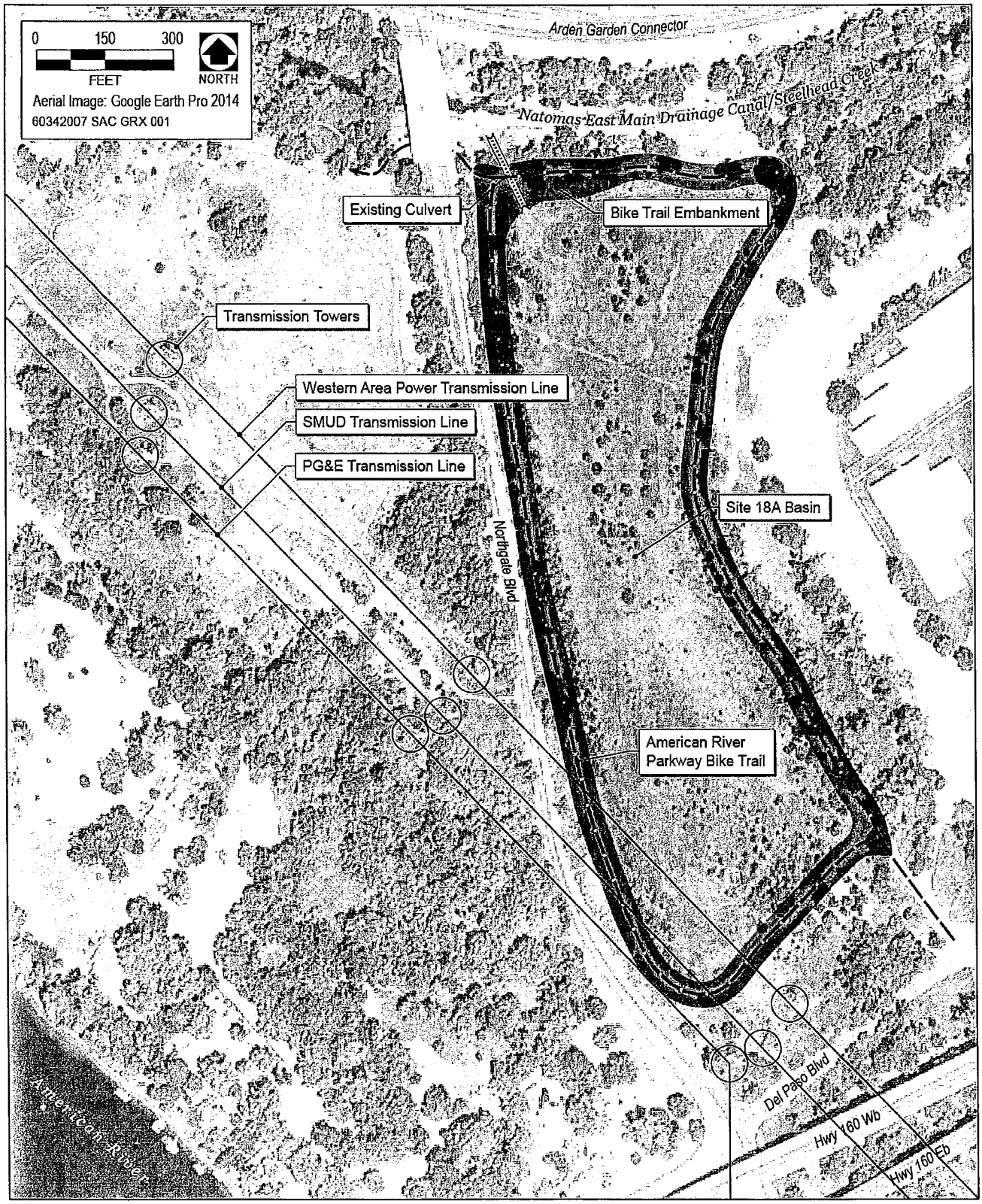
> **Exhibit 2-2**, "Site 18A Culvert Replacement and Fish Passage Enhancement Project Site Map" has been revised to show the location of the overhead transmission lines and the transmission line towers.

Page 2-5 (in response to SMUD comment letter):

> **Exhibit 2-3**, "Construction Plan View" has been revised to show the location of the overhead transmission lines and the transmission line towers.

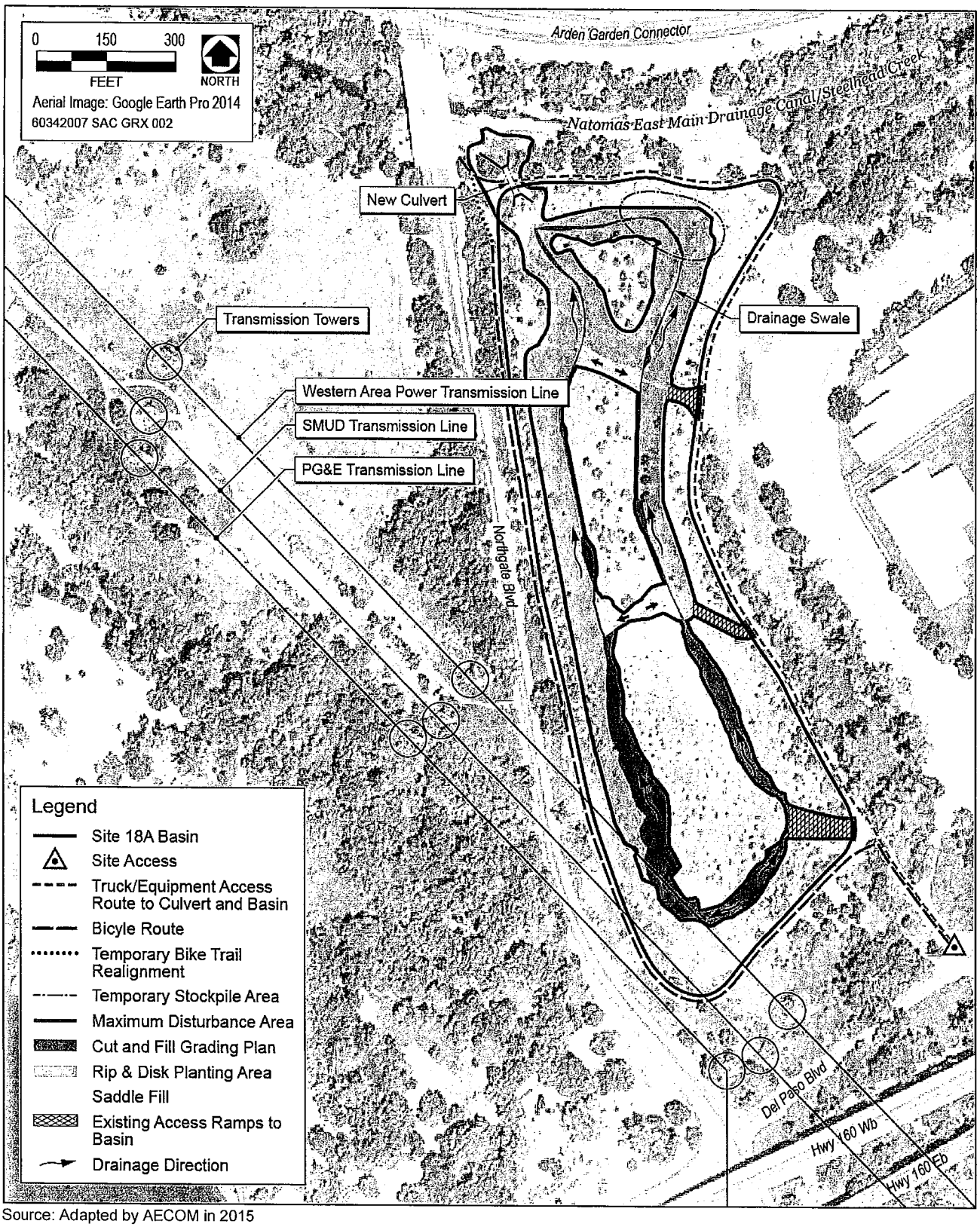
Page 3-61 after third paragraph (In response to SMUD comment letter):

Several overhead transmission lines span over the southwest portion of Site 18A with transmission line towers located on both the south and west sides of the basin (see **Exhibit 2-3**). The proposed project would only affect land within the Western Area Power Administration (WAPA) transmission line easement (Del Rio, pers. comm., 2015). The proposed project would not affect WAPA from an electrical clearance point of view. If grading and planting activities are proposed within the WAPA transmission easement, these activities may require permission from WAPA. SAFCA would obtain permission for activities within the easement if required.



Source: Adapted by AECOM in 2015

Exhibit 2-2. Site 18A Culvert Replacement and Fish Passage Enhancement Project Site Map



Source: Adapted by AECOM in 2015

Exhibit 2-3. Construction Plan View

Page 3-64 and 3-64 (In response to SMUD comment letter):

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project?

~~No~~Less-Than-Significant Impact. SAFCA, acting as a joint powers authority pursuant to the Joint Exercise of Power Act (California Government Code Section 65000), must consider relevant Federal and State land use policies, but is exempt from plans, policies, and regulations adopted by local agencies (California Government Code Section 53090). Nevertheless, the following analysis considers the proposed project's consistency with relevant adopted local plans and policies to describe how local agencies address resource issues within and in the vicinity of Site 18A.

As stated previously, there are policies from the adopted City of Sacramento General Plan regarding land use planning applicable to the proposed project. Site 18A is designated by the City General Plan as Recreation and zoned American River Parkway-Floodplain. Implementing the proposed project would involve replacing the existing culvert, regrading and modifying the depths and drainage gradients of portions of the drainage swales within Site 18A, and restoring and enhancing habitat within the site and the areas disturbed during culvert replacement activities. These improvements would occur on the existing seasonally flooded wetland and riparian habitat area and would not introduce land uses or result in other changes in land use that would cause inconsistencies with the Recreation land use designation and American River Parkway-Floodplain zoning code.

Site 18A is within the American River Parkway and would be subject to the American River Parkway Plan. Policies 3.2, 3.7, and 3.11 of the American River Parkway Plan support the protection, enhancement, and expansion of native habitats that benefit fish species, including riparian, woodland, and in-channel habitat that provides important shaded riverine aquatic habitat necessary for spawning and rearing of fish species (see Section 3.5, "Biological Resources," for further discussion). Habitat enhancement activities would focus on improving soil conditions to support revegetation of disturbed areas; improving existing wetland and riparian habitat quality and variability by planting additional seasonal wetland plants and riparian scrub; and increasing seasonally submerged vegetation, overhead cover, and fish rearing and feeding habitat. Improved floodplain-creek connectivity and enhancement of vegetative cover would likely improve fish rearing habitat, reduce fish stranding, and facilitate juvenile salmonid outmigration. Therefore, implementing the proposed project would be consistent with the American River Parkway Plan.

Consistency issues with applicable land use plans and policies would be issues related to land use regulations and not to a physical environmental impact of project implementation. Therefore, conflicts with applicable adopted land use plans and policies would not be considered a significant impact under CEQA, in and of itself. Specific impacts associated with other resource and issue areas are addressed in each technical section of this IS/MND as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental impacts that could result from implementing the proposed project.

For the reasons described above, the proposed project would not conflict with City of Sacramento General Plan policies, land use designations, or zoning, or with American River Parkway Plan policies.

A WAPA transmission line easement traverses, and its overhead transmission lines span over the southwest portion of proposed project footprint on Site 18A. The transmission line towers are outside the

basin to the south and west. While the proposed project would not affect WAPA from an electrical clearances point of view, if grading and planting activities are proposed within the transmission line easement, these activities may require permission from WAPA. Because permission would be requested for modifications within the WAPA easement if needed, any grading would be minor, and no trees or shrubs would be planted in the easement, the project is expected to comply with WAPA requirements without substantial alteration. Therefore, ~~no~~the impact would ~~occur~~be less than significant, and no mitigation would be required.

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
Fax 916-373-5471

Edmund Brown, Jr., Governor

March 11, 2015

Anna Starkey
US Army of Corps of Engineers
2020 L Street, Suite 400
Sacramento, CA 95811

Clear
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STATE CLEARING HOUSE

Sent Via Fax: 916-414-5850
# of Pages: 2

SCH# 2015042009

RE: Site 18A Culvert Replacement project, Sacramento County

Dear Ms. Starkey:

Government Code §65352.3 requires local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of protecting, and/or mitigating impacts to cultural places. Attached is a consultation list of tribes with traditional lands or cultural places located within the requested General Plan boundaries.

As a part of consultation, the NAHC recommends that local governments conduct record searches through the NAHC and California Historic Resources Information System (CHRIS) to determine if any cultural places are located within the area(s) affected by the proposed action.

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. Local governments should be aware, however, that records maintained by the NAHC and CHRIS are not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a cultural place.

If you receive notification of change of addresses and phone numbers from Tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at (916) 373-3713.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

24 April 2015

John A. Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, CA 95814

CERTIFIED MAIL
7014 2870 0000 7535 8782

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, SITE 18A CULVERT REPLACEMENT AND FISH PASSAGE ENHANCEMENT PROJECT, SCH# 2015042009, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 2 April 2015 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Site 18A Culvert Replacement and Fish Passage Enhancement Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

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[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements
If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Regulatory Compliance for Commercially Irrigated Agriculture
If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program.
There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100.** Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory

Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.

Trevor Cleak
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Department of Transportation
Michael J. Penrose, Director

Divisions
Administration
Maintenance & Operations
Engineering & Planning

County of Sacramento

April 28, 2015

John Bassett
Director of Engineering
Sacramento Area Flood Control Agency
1007 Seventh Street, 7th Floor
Sacramento, CA 95814

SUBJECT: NOA OF IS/MND FOR SITE 18A CULVERT AND FISH PASSAGE

Dear Mr. Bassett:

The Sacramento County Department of Transportation (SACDOT) has reviewed the NOA of IS/MND for Site 18A Culvert and Fish Passage Project, dated April 1, 2015. We appreciate the opportunity to review this document. Please coordinate with the SACDOT staff in implementing the Traffic Safety and Control Plan for construction related truck traffic and any bike trail closures. We looked at the project document and it is our opinion that due to the very low volume of trucks the impact will be minimal. It is still advised that the City (the impacted roads in the immediate vicinity of the project are within the City of Sacramento) should monitor their pavements (taking before and after photographs among other methods) to determine if any direct damage occurred.

Should you have any questions, please feel free to contact me at (916) 875-2844

Sincerely,

Kamal Atwal

Kamal Atwal, P.E.
Associate Transportation Engineer
Department of Transportation

KA/MP

c: Dean Blank, DOT
Matt Darrow, DOT

SMUD™

May 1, 2015

John Bassett
Sacramento Area Flood Control Agency
1007 7th Street, 7th Floor
Sacramento, CA 95814

Subject: Initial Study/Proposed Mitigated Negative Declaration (IS/MND) for the Site 18A Culvert Replacement and Fish Passage Enhancement Project

Dear Mr. Bassett

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Initial Study/Proposed Mitigated Negative Declaration (IS/MND) for the Site 18A Culvert Replacement and Fish Passage Enhancement Project. SMUD is the primary energy provider for Sacramento County and the proposed project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

It is our desire that the IS/MND acknowledge any project impacts related to the following:

- Overhead and or underground transmission and distribution line easements. Please view the following links on smud.org for more information regarding transmission encroachment:
  - https://www.smud.org/en/do-business-with-smud/documents/Guide-for-Transimssion-Encroachment.pdf. Some of these requirements include the following
  - https://www.smud.org/en/business/customer-service/support-and-services/documents/Underground-Structure-T007.pdf
- Utility line routing
- Electrical load needs/requirements
- Energy Efficiency
- Climate Change

Further, SMUD has a transmission line tower that is located on the south side of detention basin site 18A and 230 kilovolt (kV) and 115kV circuits that span over the southwest portion of the site. The described work will not affect SMUD from an electrical clearances point of view. We have 2 main concerns with this project:

1. Since this is an existing detention basin that is being modified, we are concerned that a protected species, either animal or plant can take a foothold in the basin and further restrict our access for future maintenance, inspection or construction activities.
2. The safety of construction personnel while they perform the proposed activities. SMUD will provide comments at the appropriate time to give guidance to construction crews so that they understand the overhead hazards and activities that SMUD will permit and not permit within our transmission line easement.

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed project. Please ensure that the information included in this response is conveyed to the project planners and the appropriate project proponents.

Environmental leadership is a core value of SMUD and we look forward to collaborating with you on this project. Again, we appreciate the opportunity to provide input on this IS/MND. If you have any questions regarding this letter, please contact Emily Bacchini, SMUD Environmental Specialist at (916) 732-6334.

Sincerely,

Rob Ferrera
Environmental Specialist
Environmental Management
Legislative & Regulatory Affairs
Sacramento Municipal Utility District

Cc: Emily Bacchini
Rob Ferrera
Jose Bodipo-Memba
Pat Durham
Joseph Schofield

EXHIBIT C

Final

Mitigation Monitoring and Reporting Program for the

Site 18A Culvert Replacement and Fish Passage Enhancement Project

SCH#2015042009

Prepared for:

SAFCA
Sacramento Area Flood Control Agency

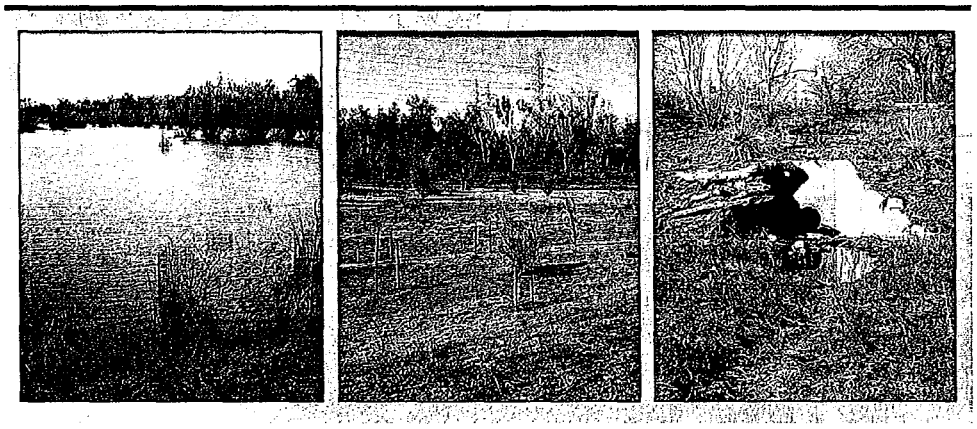
AECOM

May 8, 2015

Final

Mitigation Monitoring and Reporting Program for the

Site 18A Culvert Replacement and Fish Passage Enhancement Project



SCH#2015042009

Prepared for:

SAFCA
1007 7th Street, 7th Floor
Sacramento, CA 95814

Contact:

John A. Bassett
Director of Engineering
Phone (916) 874-7606

Prepared by:

AECOM
2020 L Street, Suite 400
Sacramento, CA 95811

Contact:

Andrea L. Shephard, Ph.D.,
CEQA Task Leader
Phone (916) 414-5800

AECOM

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May 8, 2015

ACRONYMS AND OTHER ABBREVIATIONS

BMP	best management practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CWA	Clean Water Act
IS/MND	Initial Study/Mitigated Negative Declaration
NEMDC	Natomas East Main Drainage Canal
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan

MITIGATION MONITORING AND REPORTING PROGRAM

In accordance with the California Environmental Quality Act (CEQA), Sacramento Area Flood Control Agency (SAFCA) prepared an Initial Study/Proposed Mitigated Negative Declaration (IS/MND) to provide the public and responsible and trustee agencies with information about the potential environmental effects associated with the construction and operation of the Site 18A Culvert Replacement and Fish Passage Enhancement Project (hereafter referred to as the "proposed project").

The IS/MND concludes that implementation of the proposed project would generate significant and potentially significant adverse environmental impacts. For all potential impacts, the IS/MND prescribes feasible mitigation capable of reducing these impacts to less-than-significant levels.

Section 21081.6 of the California Public Resources Code and California Code of Regulations (CCR) Sections 15091(d) and 15097 of the State CEQA Guidelines, require a public agency to adopt a reporting and monitoring program for changes to the project that it has adopted and incorporated into the project, at the time of approval, to mitigate, avoid, or reduce significant effects on the physical environment. These conditions are also referred to as mitigation measures.

The Mitigation Monitoring and Reporting Program is to be used by SAFCA to ensure that adopted mitigation measures identified in the IS/MND are implemented and that their implementation is documented. The Mitigation Monitoring and Reporting Program is presented in tabular format.

The table columns contain the following information:

Mitigation Number: Lists the mitigation measures by number, as designated in the IS/MND.

Mitigation Measure: Provides the text of the mitigation measures, each of which has been adopted and incorporated into the project.

Timing/Schedule: Lists the time frame in which the mitigation measure is expected to take place.

Implementation Responsibility: Identifies the entity responsible for complying with the requirements of the mitigation measure.

Completion of Implementation: SAFCA is responsible for reporting on implementation of the mitigation measures. The "Action" column is to be used by SAFCA to describe the action(s) taken to complete implementation. The "Date Completed" column is to be used by SAFCA to indicate when implementation of the mitigation measure has been completed. SAFCA, at its discretion, may delegate implementation responsibility or portions thereof to qualified consultants or contractors.

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
Biological Resources					
BIO-1	**Conduct Pre-construction Survey for Woolly Rose-Mallow and Implement Impact Avoidance and Minimization Measures.** SAFCA shall implement the following measures to avoid and minimize adverse impacts to woolly rose-mallow. a) Before construction activities begin, a focused survey will be conducted by a qualified botanist for woolly rose-mallow shrubs that may be present in or within 50 feet of areas where ground disturbance would occur. To the extent feasible, depending on timing of project implementation, surveys will be conducted during the blooming period for this species (June–September). b) If woolly rose-mallow is detected, areas where the species occurs will be fenced for complete avoidance during project implementation, to the extent feasible. c) If woolly rose-mallow is present in areas where disturbance cannot be avoided, a qualified botanist will assess the feasibility of salvaging and transplanting individuals as part of the revegetation component of the project. If such actions are deemed feasible, they will be implemented under the direction of a qualified botanist and in coordination with California Department of Fish and Wildlife (CDFW).	Before construction activities begin and during revegetation.	SAFCA		
BIO-2	**Avoid and Minimize Disturbance of Special-status Fish in Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek.** SAFCA shall implement the following measures to avoid and minimize disturbance to special-status fish in NEMDC/Steelhead Creek. a) No grading work within the existing floodway will occur during the designated flood season (i.e., November 1 to April 15), and work will not begin until evaluation of upstream conditions indicate that inundation of the construction area is unlikely to occur. b) A worker awareness training program will be conducted for construction crews before the start of construction activities and as needed when new personnel begin work on the project. The program will include a brief overview of sensitive fisheries and aquatic resources (including riparian habitat to be preserved) on the project site, measures to minimize impacts on those resources, and conditions of relevant regulatory permits.	Before, during, and as needed after construction activities.	SAFCA		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	c) Any in-water construction activities (though not currently anticipated) will be conducted during months when special-status fish species/ sensitive life stages are least likely to be present or less susceptible to disturbance (e.g., July 1 to October 31). d) All riparian vegetation that is not specified to be impacted within the grading area will be identified and fenced using orange construction fencing or similar materials. Sensitive habitat information will be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.				
BIO-3	**Conduct Pre-construction Surveys and Minimize Disturbance and Potential Loss of Active Nests of Special-Status Birds.** a) SAFCA shall implement the following measures to minimize disturbance and potential loss of active nests of special-status birds. b) Focused surveys for Swainson's hawk and other nesting raptors will be conducted by a qualified biologist before on-site project activities begin. To the extent feasible, surveys for Swainson's hawk will follow guidelines provided in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). A minimum of one survey will be conducted no more than 14 days before beginning project activities that are conducted during the nesting season (March 15–August 31). Surveys for Swainson's hawk nests will include all accessible areas of suitable nesting habitat located within 0.25 mile of areas subject to project disturbance, and surveys for other raptors will include accessible suitable nesting habitat within 500 feet of project disturbance. c) Surveys for Modesto song sparrow will include suitable habitat east of Northgate Boulevard and within up to 200 feet of areas of project disturbance, depending on the disturbance level. Surveys will be conducted within 7 days before on-site project activities begin in a given area during the migratory bird nesting season (March 1–August 31).	Before and during construction activities.	SAFCA		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	d) If active nests are found, appropriate buffers will be established and maintained around the nest sites to avoid nest failure resulting from project activities. The appropriate size and shape of the buffers will be determined by a qualified biologist and may vary depending on the species, nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity will begin within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.				
BIO-4	**Avoid and Minimize Disturbance of Riparian Vegetation and Develop Restoration Plan to Compensate for Tree Loss.** SAFCA shall implement the following measures to avoid and minimize disturbance of riparian vegetation and trees. a) If canopy and/or root pruning, cabling, or other corrective measures for preserved trees are necessary, such measures will be conducted as specified by a Certified Arborist and will conform to the pruning standards of the International Society of Arboriculture. b) Ground disturbance activity, equipment, and vehicles will not encroach within 1 foot of the drip line of trees to be preserved, to the extent feasible. The dripline area will be protected with high visibility fencing or tape before any ground disturbance or movement or storage of heavy equipment and other vehicles occurs. All fencing/tape will be removed following construction and before revegetation plantings are installed. c) Excavating within a distance of half the drip line beyond the drip line will be avoided whenever practicable. If necessary, any authorized fill or excavation within this area will be supervised by a Certified Arborist. d) To prevent root tearing and mangling by heavy equipment, hand digging will be conducted around roots in the vicinity of major trees to be preserved before pruning of roots greater than 2-inch diameter. Severed roots larger than 2 inches in diameter will be pruned or trimmed and covered with earth as soon as possible.	Before, during, and after construction and revegetation activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	e) If construction activities other than excavation are required within the dripline of preserved trees, a 6-inch layer of mulch or shredded wood material will be laid on top of the soil to protect the soil and roots (3/4-inch plywood may be used if mulch is not feasible). Mulch and/or plywood will be removed after construction is complete. f) Removal of protected trees and other riparian vegetation (e.g., shrubs) will be compensated by planting appropriate species as part of the revegetation component of the project. Replacement plantings will be provided in accordance with City and County ordinances. Other riparian vegetation will be compensated at a 1:1 replacement ratio, based on the acreage removed. Revegetation efforts will be implemented as described in the restoration plan that has been prepared for the project. This will ensure adequate plantings of appropriate species are installed, maintained, and monitored to meet replacement requirements and compensate for removal of protected trees and other riparian vegetation.				
Geology and Soils					
GEO-1	**Prepare and Implement a Grading and Erosion Control Plan.** a) Before earthmoving activities commence, SAFCA shall prepare and implement a grading and erosion control plan. The grading and erosion control plan will be prepared and implemented before on-site grading activities begin. The plan will be consistent with the State's National Pollutant Discharge Elimination System permit, and will include site-specific grading associated with culvert replacement and restoration activities. b) The aforementioned plan will include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures; a description of measures designed to control dust and stabilize disturbed soils within the construction-site; and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include the use of berms, straw cover, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion.	Before and during construction activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
Hazards and Hazardous Materials					
HAZ-1	**Prepare and Implement a Construction Fire Prevention Plan.** A fire prevention plan will be prepared and implemented by SAFCA or prepared by the construction contractor for review and approval by SAFCA in coordination with the appropriate emergency service and/or fire suppression agencies of the applicable local or State jurisdictions before the start of any construction activities. The plan will describe fire prevention and response methods, including fire precautions, requirements for spark arrestors on equipment, and suppression measures that are consistent with the policies and standards of the affected jurisdictions. When heavy equipment is used for construction during the dry season, a water truck shall be maintained on the construction site. Materials and equipment required for implementation of the plan will be available on the construction site. Training will be provided to all construction personnel regarding fire safety, and all personnel will be made familiar with the contents of the plan before the start of construction activities.	Before and during construction activities.	SAFCA.		
Hydrology and Water Quality					
HYD-1	**Prepare and Implement a Storm Water Pollution Prevention Plan or a Storm Water Management Plan and Associated Best Management Practices.** a) During the development of improvement plans, SAFCA will consult with the Central Valley Regional Water Quality Control Board (RWQCB) and Sacramento County. The purpose of the consultation will be to acquire the regulatory approvals necessary to obtain a Clean Water Act (CWA) Section 401 Water Quality Certification, and any other necessary waivers under the Porter-Cologne Water Quality Control Act. b) SAFCA will also prepare and implement the appropriate storm water pollution prevention plan (SWPPP) or storm water management plan (SWMP) to prevent and control pollution and to minimize and control runoff and erosion. The SWPPP or SWMP will identify the activities that may cause pollutant discharge (including sediment) during storms or strong wind events and the best management practices (BMPs) that will be employed to control pollutant discharge. Construction techniques that will be identified and implemented to reduce the potential for runoff may include minimizing site disturbance,	Before and during construction activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. In addition, the SWPPP or SWMP will include an erosion control plan and BMPs that specify the erosion and sedimentation control measures to be implemented, which may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking and dust generation by construction equipment. No disturbance of surfaces will occur between October 15 and April 15 without erosion control measures in place. c) The SWPPP or SWMP will also include a spill prevention, control, and countermeasure plan, and applicable hazardous materials business plans, and will identify the types of materials used for equipment operation (including fuel and hydraulic fluids), and measures to prevent and materials available to clean up hazardous material and waste spills. The SWPPP or SWMP will also identify emergency procedures for responding to spills. d) The BMPs presented in either document shall be clearly identified and maintained in good working condition, with sufficient backup stock on-site during all site work and construction activities. The construction contractor will retain a copy of the approved SWPPP or SWMP on the construction site and modify it as necessary to suit specific site conditions through amendments approved by the Central Valley RWQCB, if necessary.				
Noise					
NOI-1	**Implement Measures to Reduce Construction Noise Effects.** SAFCA shall require that its engineering design consultants and construction contractors implement the following measures to avoid and minimize construction traffic noise effects on sensitive receptors. These measures are consistent with SAFCA's standard contract specifications for noise control. To the extent feasible and practicable, the primary construction contractors shall employ noise-reducing construction practices such that noise from construction complies with applicable noise-level rules, regulations, and ordinances that apply to the work, including the noise standards established	During construction activities.	SAFCA.		

Mitigation Monitoring and Reporting Program for the Site 18A Culvert Replacement and Fish Passage Enhancement Project					
Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation	
				Action	Date Completed
	for non-transportation noise sources by the applicable agencies (City of Sacramento), depending on the jurisdictional location of the affected receptor(s). Measures that shall be used to limit noise shall include the following: a) Prohibit use of materials and equipment deliveries prior to 7 a.m. and after 6 p.m., Monday through Saturday; and prior to 9 a.m. and after 6 p.m., on Sunday. b) Establish and enforce construction site and haul road speed limits. c) Route construction-related truck traffic along roadways that will cause the least disturbance to residents. d) Use high-grade engine exhaust silencers and engine-casing sound insulation. e) Restrict the use of bells, whistles, alarms, and horns to safety-warning purposes.				
Transportation/Traffic					
TRA-1	**Repair Damaged Roadways and Bike Trails Following Construction.** Following completion of construction, SAFCA, its engineering design consultants, or its construction contractors will assess and repair any project-related damage to roadways and paved bicycle/pedestrian paths that were used during construction, including all project-related potholes, fractures, or other damages.	Following completion of the culvert replacement and swale modifications.	SAFCA.		

REFERENCES

Swainson's Hawk Technical Advisory Committee. 2000 (May 31). *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* Available: https://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html. Accessed March 9, 2015.

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Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Sacramento
Address: 600 8th St
Sacramento, CA 95814

From:
Public Agency: Sacramento Area Flood Control Agency
Address: 1007 7th St, 7th Floor
Sacramento, CA 95814
Contact: John Bassett, Director of Engineering
Phone: (916) 874-7606

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2015042009

Project Title: Site 18A Culvert Replacement and Fish Passage Enhancement Project

Project Applicant: Sacramento Area Flood Control Agency

Project Location (include county): NE of intersection of Northgate Blvd./Del Paso Blvd. in City & Co of Sacramento

Project Description:
SAFCA proposes to reduce the potential for fish stranding, further reduce predation by fish-eating (piscivorous) birds, and increase rearing and feeding habitat for juvenile salmonids at Site 18A, a seasonal wetland complex in the American River Parkway adjacent to the Natomas East Main Drainage Canal (NEMDC) Steelhead Creek. The proposed project would involve replacing the existing culvert with a larger, wider culvert to improve the exchange of flows into and out of Site 18A, and modifying the gradient of the interior swales and increasing the extent of seasonally submerged vegetation and overhead cover within the Site 18A floodplain.

This is to advise that the Sacramento Area Flood Control Agency (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on May 21, 2015 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
SAFCA, 1007 7th St, 7th Floor, Sacramento, CA 95814

Signature (Public Agency): Title: Executive Director

Date: 22 MAY 2015 Date Received for filing at OPR:

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011