American River Watershed Common Features 2016 Project
Beach Stone Lakes Mitigation Site
Supplemental Environmental Assessment
Supplemental Initial Study

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SAFCA
Sacramento Area Flood Control Agency

CENTRAL VALLEY FLOOD PROTECTION BOARD
PUBLIC SAFETY AND FLOOD MANAGEMENT
STATE OF CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

ARCF	American River Common Features
ARCF GRR	American River Watershed Common Features General Revaluation Report
BACT	Best Available Control Technology
BMP	best management practices
BSLMS	Beach Stone Lake Mitigation Site
CAA	Clean Air Act
CARB	California Air Resource Board
CAR	Coordination Act Report
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO_{2e}	Carbon dioxide equivalent
Corps	US Army Corps of Engineers
CWA	Clean Water Act
DWR	Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ETL	Engineering Technical Letter
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
IS	Initial Study
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MPH	Miles per Hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
O&M	operations and maintenance
PACR	Post Authorization Change Report
RDC1	Sacramento River, Reach D, Contract 1
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
Sac Urban	Sacramento Area Urban Levee Improvement Project
SAFCA	Sacramento Area Flood Control Agency
SASD	Sacramento Area Sewer District
SIP	Statewide Implementation Plan
SREL	Sacramento River East Levee
SMAQMD	Sacramento Metropolitan Air Quality Management District
SPCP	Stormwater Pollution Control Plan
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Protection Plan

TAC	Toxic Air Contaminants
USACE	U.S. Army Corps of Engineers
USEPA	U. S. Environmental Protection Agency
USFWS	U. S. Fish and Wildlife Service
VOC	Volatile Organic Compounds
WRDA	Water Resources Development Act

1.0 PURPOSE AND NEED FOR ACTION

1.1 Introduction

This document is a joint Supplemental Environmental Assessment/Initial Study (EA/IS) prepared by the U.S. Army Corps of Engineers (Corps), Sacramento District as the Federal lead agency under the National Environmental Policy Act (NEPA) and the State of California Central Valley Flood Protection Board (CVFPB) as the State lead agency under the California Environmental Quality Act (CEQA). The Sacramento Area Flood Control Agency (SAFCA) and the CVFPB are the non-Federal sponsors for the American River Common Features (ARCF) 2016 Project with SAFCA as the non-federal construction partner and is leading implementation. The Corps, CVFPB, and SAFCA propose to construct the Beach-Stone Lakes Mitigation Site (BSLMS) to provide compensatory riparian mitigation for the riparian habitat expected to be lost or degraded by construction of the American River Common Features (ARCF) 2016 Project.

Beginning with the American River Watershed Investigation the ARCF 2016 Project investigated issues of levee seepage, stability, erosion, along with levee height deficiencies that have almost led to the inundation of Sacramento. Several plans were considered and Congress took note of the "Common Features" between them and authorized the ARCF 2016 Project which includes the Sacramento River in its scope. The Corps has determined that certain levee segments along the Sacramento River do not comply with current Federal standards for flood protection, partly due to erosion, seepage, and slope stability. Seepage beneath and through portions of the levee have been identified as a significant risk that could lead to levee failure. The ARCF 2016 Project involves modifications to the American and Sacramento River levees to reduce flood risk. When completed, the ARCF 2016 Project would provide increased protection to the City of Sacramento by addressing existing erosion, seepage, and stability for the levee system.

This Supplemental EA/IS supplements the 2016 ARCF Environmental Impact Statement/Environmental Impact Report (2016 ARCF EIS/EIR) and is provided to evaluate the potential environmental impacts associated with the development of off-site mitigation that was not analyzed in the original EIS/EIR. Levee improvements to the Sacramento River east levee would require the removal of trees that contribute to the ecological function and value of the local riparian corridor[1]. The riparian corridor provides important habitat to listed fish species in

[1] While riparian communities are not biomes, they occur within any biome wherever there is perennial water near the surface (Desert Museum 2019). This habitat, generally found along river margins, or areas with a hydrologic connection (including subsurface hydrology), is defined and characterized by hydrophilic plants (Moyle, et al.1996). The habitat typically thought of as "riparian", is defined by Cowardin, et al (1979) to be in the class of either Scrub-Shrub Wetlands or Forested Wetlands; however, the term "riparian habitat" is recognized to be the ecologically dynamic system of herbaceous and woody hydrophilic plants occurring along or near waterways. The riparian corridor, generally comprising less than 1% of the overall land area, are among the most productive and valuable natural resources (NRCS 1996) Less than 4% of California's riparian habitat exists today and much of the remaining habitat is in a degraded condition (Katibah 1984). In the Sacramento River Valley, only 25,000 of the estimated 500,000 acres of riparian habitat that existed in 1850 remain today (Sacramento County 2019).

the river, listed avian species, and other migratory birds in the Pacific Flyway. The 2015 U.S. Fish and Wildlife Service (USFWS) Biological Opinion (BO) (08ESMF00-204-F-0518) and Fish and Wildlife Coordination Act Report (CAR) (08ESMF00-2013-CPA-0020) issued for the ARCF 2016 Project require and recommend compensating for the loss of riparian habitat caused by the ARCF work being performed on the Sacramento and American River levees. The BSLMS is first site under development to meet the requirements and recommendations contained in the Service's BO and CAR. This Supplemental EA/IS analyzes the likely environmental effects that construction of the mitigation site may cause.

Plant installation at the BSLMS would occur over 2 seasons (2019 and 2020), with establishment and monitoring periods to follow for a combined construction timeframe of approximately five years. The BSLMS project plan includes both quantitative and qualitative survival and vitality standards designed to ensure success of planted riparian habitat, oak woodland, and shrub/scrub.

1.2 Project Location

The BSLMS project area is a 30 acre site owned by the Sacramento Area Sewer District (SASD) located west of Interstate 5, east of the Sacramento River and Highway 160, and south of Freeport, California, approximately 7.5 miles south of downtown Sacramento. (Figure 1). The project areais located on farmland within the Morrison Creek Floodplain. A wetland delineation was completed in the spring of 2018 and demonstrated there are no jurisdictional wetlands at this location (GEI, 2018).

1.3 Background and Need for Action

Congress directed the Corps to investigate additional means to reduce flood risk to the City of Sacramento following the 1986 flood, which brought 10 inches of rain to the Sacramento area over an 11-day period and caused severe damage to Sacramento's levee system. The Corps completed this investigation in 1991, recommending construction of Auburn Dam and levee improvements downstream of Folsom Dam. Congress directed the Corps to conduct supplemental analysis of the flood management options considered in the 1991 study. The resulting Supplemental Information Report, American River Watershed Project, California (March 1996) recommended a similar set of solutions, including construction of Auburn Dam and downstream levee improvement work (Corps, 1996). The March 1996 supplemental report considered, but did not advance, additional alternatives for Folsom Dam improvements.

Figure 1. Beach Stone Lakes Mitigation Site Project Vicinity.

Figure 2. Beach Stone Lakes Mitigation Site

Congress recognized that levee improvements were "common" to all candidate plans in the Corps' original and supplemental reports and that there was a Federal interest in participating in these "common features". Thus, the ARCF Project was authorized in the Water Resources Development Act (WRDA) of 1996, Pub. L. No. 104-303, § 101(a) (1), 110 Stat. 3658, 3662-3663 (1996) (WRDA 1996), and the decision about construction of Auburn Dam was deferred. Major components for the ARCF Project in the WRDA 1996 authorization included construction of seepage remediation along approximately 22 miles of American River levees, and raising and strengthening of 12 miles of the Sacramento River levee in the Natomas Basin.

The ARCF Project was modified by the WRDA of 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999) (WRDA 1999), which added additional levee improvements to allow the safe conveyance of greater volumes of water up to an emergency release of 160,000 cubic feet per second (cfs) from Folsom Dam. These improvements included construction of seepage remediation and levee raises along four stretches of the American River, and construction of levee strengthening features and raising of 5.5 miles of the Natomas Cross Canal levee in Natomas. Some of the levee improvement features authorized in WRDA 1996 and WRDA 1999 have been constructed by the Corps but the Natomas Basin features were deferred and later reassessed in the Natomas Post Authorization Change Report (PACR). The Natomas PACR was authorized in the Water Resources Reform and Development Act (WRRDA) of 2014, Pub. L. No. 113-121, § 7002, 128 Stat. 1193, 1366 (2014), and the associated levee improvements, referred to as the ARCF, Natomas Basin Project, are currently under construction and outside the scope of this Supplemental EA/IS.

The Flood of 1986 also caused significant seepage through sections of the Sacramento River levees from Verona (the upstream end of Natomas) at river mile (RM) 79 to Freeport at RM 45.5 and on both the north and south banks of the American River levees. Seepage on the Sacramento River was so extensive that soon after the 1986 flood event, Congress funded levee improvements as part of the Sacramento River System Evaluation, Phase I, Sacramento Urban Area (Sac Urban). The Sac Urban Project constructed shallow seepage cutoff walls from Powerline Road in Natomas at approximately RM 64 downstream to Freeport, CA. At the time, seepage through the levees was considered to be the only significant problem affecting the levees in the Sacramento area.

After construction of the Sac Urban Project, the Sacramento Valley experienced another flood event in 1997. New seepage from this flood led to a geotechnical reevaluation of levees in the vicinity of the City of Sacramento, which showed that deep underseepage was still occurring within reaches of the Sacramento River levees despite the Sac Urban Project, and within American River levees as well. Seepage on the American River was expected because levee improvements had yet to be constructed but the significant seepage on Sacramento River levees improved by the Sac Urban project exposed the depth of underseepage occurring, apparently below the new cutoff walls, a conclusion later confirmed by the Levee Seepage Task Force in 2003.

While the reevaluation study was beginning for the ARCF Project, the Folsom Dam PACR was being completed by the Sacramento District. The results of that PACR, and of the follow-on Economic Reevaluation Report for Folsom Dam improvements, showed that additional levee improvements were needed on the American River and on the Sacramento River below their confluence in order to truly capture the benefits of the Folsom Dam improvement project. The levee problems identified in these reports consisted primarily of the risk of erosion on the American River and seepage, stability, erosion, and height concerns on the Sacramento River below its confluence with the American River. These findings pointed to a need for additional reevaluation in the two remaining basins surrounding the city of Sacramento: American River North and American River South. The ARCF General Revaluation Report (ARCF GRR) was completed in December 2015, and the Record of Decision (ROD) for the EIS/ EIR was signed in August 2016. Congress authorized the reevaluated ARCF Project in the WRDA of 2016.

Prior to authorization of the ARCF GRR the Corps' non-Federal partner, SAFCA, conducted its own review, investigation, and analysis to determine the scope of improvements on the Sacramento River necessary to meet Federal Emergency Management Agency (FEMA) and State urban levee design criteria (ULDC) standards, as a potential early implementation action under the State's and FEMA's Levee Accreditation Program. SAFCA initiated design of seepage and stability improvements to the Sacramento River east levee as part of this independent initiative, but now that the Corps has received authorization and appropriations from Congress, SAFCA is suspending this activity in deference to the Corps as lead implementation agency for design and construction of Sacramento River levee improvements.

In July 2018, Congress granted the Corps construction funding to complete urgent flood control projects under the Bipartisan Budget Act of 2018. ARCF 2016 was identified for urgent implementation, and Congress supplied full funding to allow the Corps to implement the much needed levee improvements as quickly as possible. Although most environmental effects were addressed in the ARCF GRR EIS/EIR, additional impacts associated with some of the work were identified after completion of the EIS/EIR, through SAFCA's later assessment. Because these impacts were not assessed in the ARCF GRR EIS/EIR, Supplemental NEPA and CEQA analyses of effects on natural resources will be conducted to ensure that project planning is fully compliant with NEPA and CEQA.

For its part SAFCA, as the Non-Federal Construction Partner, may construct Beach Stone Lakes Mitigation Site without Corps input. But if SAFCA proceeded on its own it would not receive federal funding because the work would be considered a local project and therefore could not count toward the NEPA, FWCA, and ESA mitigation requirements for the ARCF 2016 Project. Mitigation for impacts caused by the ARCF 2016 Project would still need to be provided in another location, or mitigation credits would need to be purchased from an approved mitigation bank.

1.4 Authority

The Beach Stone Lakes Mitigation Site is proposed under the ARCF 2016 Project. The American River Watershed Common Features Project was originally authorized by Section 101(a)(1)(A) of WRDA 1996, Pub. L. No. 104-303 § 101(a) (1), 110 Stat. 3658, 3662-3663 (1996), as amended by Section 366 of WRDA of 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999). Additional authority was provided following the interim general reevaluation study in Section 1322(b) of WRDA 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707.

1.5 Purpose and Need for the Supplemental Environmental Assessment/Initial Study

The proposed mitigation site would compensate for the loss of riparian habitat along levee reaches to be improved during completion of the ARCF 2016 Project. The proposed mitigation is required to comply with the terms of the BO and CAR issued by the U.S. Fish and Wildlife Service in 2015 for the ARCF GRR. CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) and the Corps' Procedures for Implementing NEPA (ER 200-2-2) specify that supplemental NEPA analyses are required if: (i) the Corps makes substantial changes in the proposed action that are relevant to environment concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. This Supplemental EA/IS describes the existing environmental conditions in the proposed mitigation project area, evaluates the expected environmental effects of the alternatives proposed, including a No Action alternative, and identifies the preferred alternative through a systematic screening process. This Supplemental EA/IS has been prepared in accordance with the requirements of the NEPA and the guidelines for implementation of the CEQA.

1.6 Previous Documentation Relevant to the ARCF 2016 Project

The following is a list of ARCF project documentation, or documentation for related actions, which may be relevant to the current Supplemental EA/IS:

- December 1991, American River Watershed Investigation California Feasibility Report: Part I—Main Report and Part II—Environmental Impact Statement/Environmental Impact Report;
- December 1991, American River Watershed Investigation California Feasibility Report, Volume 2, Appendix G: Section 404 Evaluation;
- March 1996, Supplemental Information Report, American River Watershed Project, California: Part I—Main Report and Part II—Final Supplemental Environmental Impact Statement (FSEIS)/Environmental Impact Report;
- June 27, 1996, Chief's Report on FSEIS, signed by Acting Chief of Engineers, Major General Pat M. Stevens; and July 1, 1997, ROD on FSEIS, signed by Director of Civil Works, Major General Russell L. Furman;
- November 2008, Final Environmental Impact Statement for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee

Improvement Project, Sacramento CA. Prepared by EDAW/AECOM, Sacramento, CA;

- October 2010, Final Environmental Impact Statement on the Natomas Levee Improvement Project Phase 4b Landside Improvement Project, Sacramento CA. Prepared by AECOM, Sacramento, CA;
- September 2015, Final Biological Opinion for the American River Common Features General Reevaluation Report. Issued by the U.S. Fish and Wildlife Service. Sacramento, California.
- September 2015, Final Fish and Wildlife Coordination Act for the American River Common Features General Reevaluation Report. Issued by the U.S. Fish and Wildlife Service. Sacramento, California.
- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report;
- July 2016, Final Environmental Impact Report, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project. Prepared for SAFCA by GEI Consultants;
- August 2016, ROD on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy;
- December 2018, Draft Environmental Assessment/Initial Study/Mitigated Negative Declaration for Reach D Contract 1, Front Street Seepage Berm. Sacramento, California.

1.7 Decisions Required

The District Engineer, Commander of USACE, Sacramento District, must decide whether the proposed Beach Stone Lakes Mitigation Site project qualifies for a Finding of No Significant Impact (FONSI) under NEPA, or whether construction or operation of the mitigation site is likely to cause potentially significant environmental impacts that would need to be addressed through preparation of an Environmental Impact Statement (EIS). In addition, the CVFPB must decide if the proposed project qualifies for a Negative Declaration (ND) or Mitigated Negative Declaration (MND) under CEQA, or whether an Environmental Impact Report (EIR) must be prepared to address potentially significant environmental impacts that may arise from construction or operation of the mitigation project.

2.0 ALTERNATIVES

2.1 Alternatives That Were Considered and Not Carried Forward

2.1.1 Purchasing Mitigation Bank Credits

Relying on the purchase of riparian credits from a mitigation bank was discarded as an alternative in deference to concerns raised by the resources agencies, US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) during the consultation process. The Services were concerned that purchasing credits outside of the impact area would leave a far greater permanent impact within the project area, with possibly detrimental effects on listed species. The Services requested that the Corps make on-site mitigation a priority, or if off-site, to prioritize sites based on proximity to the impact area. Furthermore the scarcity of available riparian mitigation credits due to competition in the region from major infrastructure projects could diminish the ability of banks to accommodate the needs of other large projects.

2.1.2 Building a Mitigation Site at a Different Location

Because the scale of needed mitigation is too great to accommodate within the footprint of the levee reaches to be improved by the ARCF 2016 Project, several off-site locations were considered, screened, and ranked through a series of interagency meetings. The BSLMS was chosen based on proximity to the Sacramento River, and the past success of other mitigation sites in the immediate vicinity. Additional mitigation sites may be constructed based on the BSLMS template to mitigate for the loss of additional riparian corridor effects from the ARCF 2016 Project, if the BSLMS is successful. Furthermore, the Corps intends to work with its local partners and resource agencies to develop suitable mitigation sites in the region to address effects from the loss of riparian vegetation and elderberry shrubs during each phase of levee modification. Future mitigation sites would be addressed in subsequent NEPA and CEQA analyses once the sites are identified and designed.

2.1.3 Mitigating On Site

Levees in the ARCF 2016 Project construction areas were originally constructed under different engineering standards and guidelines than those now required by both State and Federal regulations and standards. During the century since many of these levees were constructed, native and non-native riparian habitat has colonized much of the levee system. This riparian vegetation provides critical habitat for local fish and wildlife species, but suburban development has utilized most of the acreage on the landside of the Sacramento and American River levees, making landside habitat mitigation infeasible in most of the project area.

Compliance and consistency with the Corps' Engineering Technical Letter (ETL) 1110-2-583 *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures* requires that landscape plantings, including mitigation plantings, not compromise the reliability of levees. This condition generally prohibits the planting or maintaining of woody vegetation on the levee prism, or 15 feet from the landside and waterside slopes. The State of California's Urban Levee Design Criteria (ULDC) imposes similar restrictions. While the Corps can seek a variance or deviation from this policy to allow plantings of appropriate habitat on the lower half of the waterside levee slope, the agency must show that the proposed plantings would not compromise the levee. As a result the most promising real estate for on-site mitigation for riparian corridor habitat lost to ARCF 2016 construction is found within open areas on the waterside berm of the Sacramento and American River levees, yet these areas are generally not large enough to allow creation of habitat in sufficient acreage to meet the project's mitigation objectives required by the USFWS BO. Under the circumstances, the acquisition of uncommon acreage like the BSLMS may prove critical to fulfilling the project's mitigation requirements.

2.2 No Action

Under the "No Action" alternative the proposed mitigation site would not be built. The land would continue to be farmed, as described later in the document, and occasionally, in flood years, Morrison Creek would inundate the area. Generally, the project area would remain consistent with existing conditions and would not generate the benefits associated with the proposed mitigation.

However, since SAFCA is the implementing agency, there is the potential that they could implement the proposed action without federal participation. In this scenario, no Federal Action would occur. However, the effects under this "No Federal Action" alternative would be consistent with those described throughout Chapter 3 for the proposed action.

2.3 Proposed Action

Construction of the BSLMS is the proposed action because of the site's availability of open land in close proximity to the Sacramento River east levee project sites. This option allows for mitigation that is local to the project area and has a high chance of meeting the success standards that are set by the Final ARCF EIS/EIR. The riparian plantings, genetically sourced from local populations, would be scheduled for installation during December of Year One and native grasses to be planted in the fall of Year Three (see Table 1, below). BSLMS would also have the incidental benefit of preserving approximately 6 acres of preexisting mature riparian habitat adjacent on the site, which is within the parcel to be acquired for the mitigation. These six acres are not included in the proposed action; however they do provide incidental benefits.

The site would be prepared for planting as described below. A temporary drip irrigation system would be connected to a new pump and well system with an expected installation in July 2019. This drip line irrigation would last for the first two years of the planned five years of

monitoring. After the irrigation period for BSLMS is complete, the well would remain available for use by the farmers to improve the productivity of the remaining agricultural acreage.

Performance standards established by SAFCA for woodland planting and survival during the maintenance period must average 95% for Years One and Two, 90% for year Three, and 80% for years Four and Five. By Year 5 canopy cover generated from plantings must equal 90% or more of the square footage of the mitigation area; and the amount of perennial grasses and forbs must cover 75% of the project area. If these standards are not met, adaptive management measures would be triggered. The BSLMS would be evaluated periodically to confirm that native herbaceous cover and woodland plantings are in a healthy and vigorous condition. Bi-weekly visits would be required during the irrigation period of Years One and Two and at least monthly visits during the non-irrigation period of the final three years. These visits may involve corrective measures to include (but not limited to) weeding, spot reseeding, and recording the effects of high water events that may occur. Additionally, an annual assessment of survival, vitality and growth must be prepared. See the table below for planting type, quantity and spacing for the 24.2 acre restoration area.

When finished, the BSLMS would net approximately 24 acres of riparian habitat. Taking this into account, and that the most mitigations ratios are estimated to be 2:1, the BSLMS Project would be able to provide mitigation for 12 acres of riparian habitat that may be removed during the construction of the ARCF 2016 Project.

Table 1. Potential Species to Be Planted at BSLMS.

Botanical Name	Common name	Quantities	Spacing (Feet)
Acer negundo	Box Elder	964	10
Baccharis pilularis	Coyote Brush	297	10
Baccharis salicifolia	Mule Fat	447	10
Cercis occidentalis	Redbud	252	10
Fraxinus latifolia	Oregon Ash	263	10
Platanus racemosa	California Sycamore	89	10
Populus fremontii	Fremont Cottonwood	307	10
Quercus lobata	Valley Oak	1165	10
Rosa californica	California Rose	493	10
Salix laevigata	Red Willow	641	10
Salix lasiolepis	Arroyo Willow	652	10
Sambucus nigra	Blue Elderberry	100	10

2.3.1 Site Preparation

Before planting work can begin the following steps must be completed:

- Temporary construction access and staging areas would be set up in designated locations on the site.
- Trees near and within the project would be protected by means such as orange fencing
- During the preparation period, care would be taken to avoid damaging existing features such as (but not limited to) roads (either public or private), access ramps, sensitive habitats, and gates.
- As part of the preconstruction weed control, herbicides would be used to kill and deplete the weed seed bank. The herbicides would be non-generic, and would be used judiciously, to reduce adverse effects on native woodland plantings and the germination of native seeds already growing on the site.
- Mowing would be performed in a manner that would leave a vegetation stubble of no taller than six inches followed by chopping the vegetation to avoid mats of thatch. Bailing may also be used to remove vegetation but either method would need to be approved by SAFCA and the Corps before starting.
- Type and timing of discing for pre-planting weed management and the incorporation of vegetal material into the soil would be done in a manner that avoids adverse effects on woodland plantings and the germination of native seeds.
- Container plantings and cuttings would be grown and sourced from local nurseries.
- For erosion control and spill control measures, a Stormwater Pollution Protection Plan (SWPPP) and Stormwater Pollution Control Plan (SPCP) would be completed by the Contractor prior commencing project construction.

The contractor would be responsible for clearing the site of all trimmings, trash, debris, and recycling or otherwise disposing of materials in accordance with Federal, State, and local regulations. In preparation for planting, the site would be ripped and disked to alleviate compaction and incorporate gypsum and other soil amendments. Cross ripping would first be done with a single shank at a minimum depth of 3-feet and a maximum depth of 4 feet. Rows would be approximately 3.5 feet on center. Deep ripping would be followed by shallower ripping using 3 shanks spaced approximately 24 inches apart with a single pass to a minimum depth of 30 inches. Amendments (which would include gypsum) would be added to improve moisture retention of the soil. The site is located within the Morrison Creek floodplain and portions of the site are subject to seasonal flooding but dewatering of the site itself will not be needed as there are no wetlands, vernal pools, or marshes within the project footprint and construction would be completed prior to the rainy season.

2.3.2 Site Access

Site access would be via River Road/Hwy 160, which is immediately adjacent to the project site. Haul trucks, construction equipment, and construction workers would access River Road/Hwy 160 from Interstate 5 by exiting at Cosumnes River Boulevard. Staging of equipment and materials is proposed to be on site. Since all work is land side of the levee, no water access is needed.

2.3.3 Construction Workers and Schedule

All workers would access the site by regional and local roadways. Construction hours would comply with Sacramento County's noise ordinance and would be: Monday through Saturday 7 a.m. to 6 p.m. and Sunday 9 a.m. to 6 p.m. No work or hauling would take place on holidays without permission given by the County of Sacramento. Construction is expected to begin in July 2019 and should take approximately 5 months to complete.

2.3.4 Restoration and Cleanup

Any staging area would be restored to original pre-existing contour and condition. To avoid erosion, any staging area would be hydro seeded and layered with wood mulch to prevent encroachment of invasive species. Any roads or other access areas damaged by construction would be repaired and restored to prior condition. All trash, excess construction materials, and construction equipment would be removed.

2.3.5 Operations and Maintenance

Once construction is complete and the performance standards have been met at the end of the five year period, the non-federal sponsor (SAFCA) would be responsible for the Operations and Maintenance (O&M) of the facility, including repair, rehabilitation, and replacement of all mitigation features. This includes regular maintenance activities including mowing, herbicide application, and rodent control.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the environmental resources in the mitigation project area and potential environmental impacts of the alternatives considered.

3.1 Resources Not Considered in Detail

Some resources were eliminated from further analysis in this Supplemental EA/IS because effects were estimated to be negligible, or because the proposed action would not create additional impacts to the resources beyond the scope of those addressed within the 2016 ARCF GRR Final EIS/EIR. Because the BSLMS was not identified in the 2016 ARCF GRR EIS/EIR as part of the recommended plan and was later selected for implementation, the resources expected to be unaffected by construction and operation of the mitigation site are described for context in the subsections below.

3.1.1 Aesthetics

The project would convert approximately 24 acres of agricultural lands to riparian habitat, tying into the existing riparian corridor along the perimeter of the agricultural lands, and enhancing the visual diversity of the area. There may also be an increase in the presence of flowering plants. However, the agriculture aesthetic would remain the predominant visual characteristic of the area because the BSLMS would still be surrounded by agricultural lands after project completion.

3.1.2 Fisheries

The agricultural fields that comprise the project area serve the additional purpose of creating floodplain area for Morrison Creek. The North Beach Levee, which is north and west of the proposed plantings, is a setback levee for Morrison Creek. As such, all work would be conducted on the waterside of the levee; however, the project area only provides aquatic floodplain habitat during high water events and flood conditions. During normal conditions, such as the conditions during which the BSLMS would be constructed, the Morrison Creek channel ranges from approximately 300 feet at its nearest location to 3,500 feet away for the majority of construction.

The plants proposed for installation would provide beneficial effects on fish during high water events when the floodplain is activated, as the carbon and nutrient availability increases with habitat maturation. When the Morrison Creek floodplain engages, these increased resources would become available to the fishery food web cycle. The contractor would be responsible for implementing best management practices (in compliance with a National Pollutant Discharge Elimination System Construction General Permit and its associated Stormwater Pollution Prevention Plan) which would reduce or eliminate the possibility of sediment runoff entering the landside drainage system and thus entering the Sacramento River. The proposed action would

have no direct negative effects and long-term indirect beneficial effects to fisheries and no further analysis is required.

3.1.3 Hazardous Wastes and Materials

A search was performed using the State of California's Waterboard Geotracker tool. The results showed no known spills or dumping incidents of hazardous materials reported for the BSLMS or in the immediate area. The proposed planting and maintaining of trees and shrubs would provide minimal opportunity to spill or store hazardous materials within the project site. As required by Section 311(j)(1)(C) of the Clean Water Act (CWA), 33 U.S.C. 1251 the contractor would develop and implement a Spill Prevention Control and Countermeasure (SPCC) Plan. The contractor's SPCC Plan would describe the procedures and equipment necessary to minimize spills, leaks, or releases of oil or hazardous materials. In addition, the plan would address the reporting and response procedures in the event of an incident. Best Management Practices (BMP) would be followed to avoid spillage, contamination of nearby Morrison Creek and ground water.

3.1.4 Public Utilities

There are no known utility lines in the proposed project area. Although the project incorporates deep ripping excavation, no underground utilities are expected to be found within the construction footprint. The contractor would follow standard procedures for identifying underground utilities in the project area to confirm site conditions prior to construction. Before work begins, USA North would be used to find and mark any underground lines/pipes/tanks so that they would be avoided. Any overhead lines would be avoided during work. If underground utilities are identified by the utility providers or the County of Sacramento, the contractor would follow appropriate BMPs. Based on current site data and available information, no effects to public utilities are anticipated during construction.

3.1.5 Recreation

Recreational opportunities near the site include the Bartley Cavanaugh Golf Course, local events in the Freeport Township to the north of the site, wine tasting at local vineyards, cycling, and wildlife watching along the river. No formal recreational facilities exist within the project site. While construction at the site would temporarily increase traffic to/from the site, access to nearby recreational opportunities would not be hindered. The proposed action would have no effect to recreation and no further analysis is required. Implementing public information, coordination, and signage for lane changes/closures would lessen any adverse effect to recreational users.

3.1.6 Socioeconomics and Environmental Justice

As is required by Executive Order 12898, February 11, 1994, disadvantaged groups and ethnicities must be considered in all environmental decision making. The project is located in a rural area. A few single-family residences and local businesses are adjacent to the site, but they would not be displaced by the proposed construction. Due to the project site's relative isolation from the general public and its ecologically beneficial purpose, construction and operation of the mitigation site would cause no significant socioeconomic impact on any disadvantaged group, and no mitigation measures would be required.

3.2 Resources Considered in Detail

Construction of this mitigation site could cause temporary adverse effects to some natural resource areas. While some of these effects were analyzed in a general context in the ARCF GRR Final EIS/EIR (Corps, 2016), the EIS/EIR deferred mitigation site selection until detailed design. As a result, those resources likely to be affected by construction and operation of the BSLMS are discussed in detail below.

3.2.1 Air Quality

Section 3.11 of the 2016 ARCF GRR EIS/EIR adequately describes the regulatory setting and analytical methodology for assessing adverse effects this resource.

Existing Conditions

The BSLMS project area located within the Sacramento Valley Air Basin (SVAB) under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The study area is located at the southern end of the Sacramento Valley, which has a Mediterranean climate characterized by hot, dry summers and mild, rainy winters. Summer high temperatures are hot, often exceeding 100°F. Winter temperatures are cool to cold, with minimum temperatures often dropping into the high 30s. Most of the precipitation occurs as rainfall during winter storms. The rare occurrence of precipitation during summer is in the form of convective rain showers. Also characteristic of the SVAB are winters with periods of dense and persistent low-level fog that are most prevalent between storms. Prevailing wind speeds are moderate.

The air quality of a given area is determined by the amount of pollutants released into the atmosphere and the atmosphere's ability to transport and dilute the pollutants. The most important determinants of air pollution transport are wind, atmospheric stability, and terrain. The SVAB is bound by the Cascade Range on the north, the Sierra Nevada Range on the east, with the Coastal and Diablo Ranges to the west. The project area is located roughly 53 miles northeast of the Carquinez Strait, a sea level buffer between the Coast and Mt. Diablo Ranges.

Air enters the air basin through the Carquinez Strait and moves across the Delta entraining pollutants from the San Francisco Bay Area.

Heavy equipment, trucks, and generators would be used during soil excavation and preparation. This may create dust normally associated with farming practices. Ozone pollution presents a serious problem when an inversion layer traps pollutants close to the ground, causing unhealthy air quality levels. Vehicles and other mobile sources, including trucks, locomotives, buses, motorcycles, agricultural equipment, and construction equipment cause about 70 percent of the region's air pollution problems during the summer (SMAQMD 2010).

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings and the arrival of the Delta sea breeze from the southwest in the afternoons. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time between July and September. The Schultz Eddy causes the wind pattern to shift southward, causing air pollutants that have moved to the northern end of the Sacramento Valley to be blown back toward the south before leaving the valley. This phenomenon exacerbates concentrations of air pollutants in the area and contributes to violations of the ambient air quality standards (Solano County 2008).

Criteria Pollutants

The Federal Clean Air Act (CAA), established on December 17, 1963, (42 USC Ch. 85) is the authority by which the Environmental Protection Agency (EPA) sets National Annual Air Quality Standards (NAAQS) to protect human and environmental health.

The CAA established the National Ambient Air Quality Standards (NAAQS) for specific air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead (Pb). O3 is a secondary pollutant that is not emitted directly into the atmosphere. Instead it forms through the reaction of two ozone precursors: reactive organic gases (ROG) and nitrogen oxides (NO_X). These pollutants are described in greater detail below.

- Carbon Monoxide (CO): a compound of carbon and oxygen, CO. In gaseous form CO is colorless and odorless. CO has a density that is less than oxygen (O_2). When inhaled, the CO molecule bonds to the hemoglobin in red blood cells in the space that would normally be used to carry oxygen. At high enough levels, this would deprive a person of enough oxygen to cause death.
- Nitrogen Oxides (NO_x): made up of several different compounds of nitrogen and oxygen. Two common toxic compounds are toxic nitrogen dioxide (NO_2) and nitric oxide (NO). High concentrations of these compounds can irritate airways triggering asthma or asthmatic like symptoms. Long term exposure may lead to the development of asthma

and respiratory infections. In the atmosphere, nitrogen oxides may interact with water to form acid rain.

- Ozone (O_3): a colorless unstable toxic gas with a pungent odor and powerful oxidizing properties, formed from oxygen by electrical discharges or ultraviolet light. It differs from normal oxygen (O_2) in having three atoms in its molecule (O_3). Even at low concentrations, O_3 can irritate and permanently harm airways.
- Particulate Matter (PM_x): the term used for solid or liquid particles that may be emitted into the air. Particles of less than 10 microns are small enough to be inhaled and can cause health problems in the respiratory system.
- Sulfur Oxides (SO_2): compounds of sulfur and oxygen molecules that can be both gaseous and particulate matter. As they dissolve readily in water, sulfur oxides contribute to acid rain and several respiratory health issues.
- Reactive Organic Gases (ROG): carbon compounds that participate in atmospheric photochemical reactions that may result in ozone. They have been known to a cause headaches, dizziness, upper respiratory tract irritation, nausea, and cancer.
- Toxic Air Contaminants (TAC)/Hazardous Air Pollutants: airborne pollutants that may result in an increase in mortality, serious illness, or may pose a potential hazard to human health. The only TAC this project could create is diesel particulate matter (DPM). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. Most researchers believe that diesel exhaust particles contribute most of the risk because the particles in the exhaust carry many harmful organics and metals. Unlike other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists (DWR, 2012).

For these criteria pollutants, NAAQS and the California Ambient Air Quality Standards (CAAQS) were established to protect public health and welfare. The standards create a margin of safety protecting the public from adverse health impacts caused by exposure to air pollution. The U.S. Environmental Protection Agency (USEPA) is responsible for enforcing the NAAQS, primarily through their review of the State Implementation Plans (SIPs) for each state. In California, the California Air Resources Board (CARB) is responsible for the establishment of the SIP. The local air quality management districts are responsible for the enforcement of the SIP, as well as the NAAQS and CAAQS. If an area is meeting the NAAQS and CAAQS, that area is considered in "attainment". Areas that are noncompliant are "non-attainment" areas. To be in "Maintenance" is a status given when a county has improved to meet the NAAQS. The State and Federal attainment status for the SVAB are shown on Table 2 below.

Table 2. State and Federal Attainment Status.

Criteria Pollutant	Averaging Time	Federal Status	State Status
O_3	1 hour 8 hour	N/A Non-Attainment –Severe	Non-Attainment – Serious Non-Attainment – Serious
PM_{10}	24 hour Annual	Attainment N/A	Non-Attainment Non-Attainment
$PM_{2.5}$	24 hour Annual	Non-Attainment - Moderate N/A	N/A Non-Attainment
CO	1 hour 8 hour	Attainment Attainment	Attainment Attainment
NO_2	1 hour Annual	N/A Attainment	Attainment N/A
SO_2	3 hour 24 hour Annual	Attainment Attainment Attainment	N/A Attainment N/A
Pb	30 day Quarter	N/A Attainment	Attainment N/A

Source: SMAQMD, 2017
N/A Not Applicable; State or Federal Standard does not exist.

Sacramento County is in attainment for CO (since June 1998). According to the USEPA Sacramento County is in non-attainment for PM_{10} and $PM_{2.5}$ (since 2009), ozone (since 2012). (USEPA, 2018). Due to the non-attainment designations for the SVAB discussed above, SMAQMD is required to prepare SIPs for O_3, PM_{10} and $PM_{2.5}$ to establish how the area would attain the standards by dates specified within the plans.

Additionally, Federal projects are subject to the Clean Air Act General Conformity Rule (40 CFR 51, Subpart W). The General Conformity Rule ensures that Federal projects conform to applicable SIPs so that Federal actions do not interfere with a state's strategies used to attain the NAAQS. The rule applies to Federal projects in non-attainment areas for any of the six criteria pollutants for which the USEPA has established these standards, and in any areas designated as "maintenance" areas. The rule covers both direct and indirect emission of criteria pollutants or their precursors that result from a Federal project, are reasonably foreseeable, and can be practicably controlled by the Federal agency through its continuing program responsibility.

Sensitive Receptors

The population of the immediate area is low due to the agricultural nature of the area. The nearest known home is approximately 350 feet from the site, on the other side of a levee. The nearest storage building is approximately 220 feet from the site on the other side of a levee. Highway160/River Road are over 500 feet away from the project footprint of BSLMS Project. There are no schools, hospitals, or senior facilities in the vicinity of the project area.

Environmental Effects

Significance Criteria

For this analysis, an effect is considered significant if it would:

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

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. Site conditions would remain as they are now, dry land farming with seasonal use of heavy equipment, trucks, and generators. However, the Corps would still be required to mitigate for riparian impacts. If SAFCA decided to move forward without Corps participation, the effects would be consistent with the Proposed Action.

Alternative 2 – Proposed Action

Air quality emissions would be generated by heavy equipment used to construct the mitigation site. There would be no operational emissions associated with the proposed action. The site is located in the SVAB and is under the authority of the SMAQMD. The SVAB is a nonattainment area under the federal guidelines. National General Conformity *de minimis* standards for nonattainment area are shown in Table 3

Table 3. Nonattainment Area (NAA) *de minimus* Levels for NAAQS.

	Tons/year
Ozone (VOCs or NOx) Severe NAA:	25
$PM_{2.5}$ (direct emissions, SO_2, NOx, VOC, and ammonia) Moderate NAA	100

EPA, 2018
40 CFR 93.153(b) (1)

Total estimated emissions for the project are based on the project size, equipment required for construction and hauling, and length of time to complete construction. The estimated total emissions for the project are shown in Table 4 and were calculated using the SMAQMD Road Construction Emission Model, Version 8.1.0. (Appendix C).

Table 4. Estimated Emissions for the BSLMS.

Pollutant	lbs/day	CEQA Threshold	Metric Tons/year	NEPA Threshold (tons/year)
ROG	0.60	N/A	0.02	25
CO	2.54	N/A	0.10	100
NO_x	7.88	85 lbs/day	0.32	25
PM_{10}	50.30	80 lbs/day (with BMPs) and 14.6 tons/year	3.21	100
$PM_{2.5}$	10.40	82 lbs/day (with BMPs) and 15 tons/year*	0.68	100
SO_X	0.01	N/A	0.00	N/A

Calculated using SMAQMD Road Construction Emissions Model version 8.1.0 (SMAQMD, 2018)
Notes: Under CEQA, CO is not considered a pollutant of concern by SMAQMD, because construction activities are not likely to generate a substantial quantity of CO. California Ambient Air Quality Standard. µg/m3 microgram per cubic meter. ppm parts per million

Emissions from fugitive dust and equipment use would occur over the course of two years. Contributions of air pollutants would be negligible based on a comparison with local daily and federal annual thresholds. This is due to the limited size, amount of equipment, and time frame of the project. On its own, the BSLMS is unlikely to adversely impact any of the sensitive receptors in the area because emissions associated with the project are similar to ambient conditions in the area. The expected exposure may be reduced for the few nearby residences, as most work would be performed during the standard work day when residents are usually not at home.

Avoidance and Minimization Measures

Although the project would not exceed the federal general conformity or SMAQMD thresholds significance criteria, the Corps would still implement avoidance and minimization measures to reduce emissions associated with the project. The following avoidance and minimization measures would be employed, including steps to reduce dust to levels within the SMAQMD standards:

- Implement SMAQMD's Enhanced Construction Emission Control Practices.
- At no point in time would the Contractor's equipment be operated during rain events or on saturated work areas and they would coordinate with SAFCA after such an event to determine when work may begin again.

- Water exposed soil with adequate frequency for continued moist soil to minimize fugitive dust.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person would need to respond and take corrective action within 48 hours. The phone number of the District would also be visible to ensure compliance.
- If not already supplied with a factory-equipped diesel particulate filter, all construction contractors to use construction equipment outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the Contractor would achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. This will be done to meet the Corp's requirements that all off-road construction equipment comply with SMAQMD's enhanced exhaust controls (20% NOx and 45% PM reductions).
- The contractor may not operate equipment in a manner that would exceed the contractor's ability to adequately control fugitive dust produced.
- On occasions when wind speeds reach or exceed 20 miles per hour (MPH) for 15-minutes, all excavation, grading, and demolition activities would be suspended unless the first bullet point is met.
- Applying water, presoaking, or applying an equivalent material/technique is required to prevent fugitive dust from migrating off site at a level exceeding the limits set by SMAQMD.
- At least twice a work day all disturbed surfaces, piles, and exposed areas would be watered to reduce dust. This would not be done to a level that would lead to sediment flow off-site.
- If a construction area includes unpaved roads and employee/equipment parking areas that have been previously graded remain inactive for 96-hours or more, the site would be stabilized to control fugitive dust by use of water or an equivalent.
- The contractor would water all haul roads as needed to control dust.
- When an addition is made to or materials removed from an external storage pile, the pile would be stabilized by use of water (or an equivalent) or covered with tarps.
- If materials are distributed off-site, contractors would, at minimum, perform the following measures to prevent airborne emissions of dust: having materials covered,

wetting materials enough to prevent visible dust emission, and maintaining a minimum of six inches of freeboard space between the top of the container and the top of the materials. The contractor would cover earthen and aggregate materials whenever they are transported on freeways or major roadways.

- All transfer processes involving the freefall of material would done in a manner to minimize the freefall distance to reduce fugitive dust emissions.
- The speed limit for unpaved roads would be 15 MPH unless the contractor is able to provide dust control to the satisfaction of the SMAQMD with SMAQMD acting as the authority on what the new speed limit would be.
- Wheel washers and/or "rumble strips" would need to be installed for all exiting trucks and equipment or trucks and equipment would be cleaned to remove accumulated dirt prior to leaving the site.
- The accumulation of mud and dirt would be removed at least once a day from public roads when operations are occurring. This would be performed using a commercial/municipal style wet power vacuum street sweeper. The street sweeper would wet the sweeping brooms during all cleaning activities. The use of rotary brushes (power brooms) on standard construction equipment is not allowed. "Washing" of streets onto highway shoulders or into the storm drain system is not allowed.

3.2.2 Climate Change

Section 3.12 of the 2016 ARCF GRR Final EIS/EIR adequately described the regulatory setting and methodology for this resource.

Existing Conditions

This section addresses the impacts of greenhouse gases (GHG) emissions associated with implementation of the BSLMS Project on global climate change. This site is traditionally "dry" farm agriculture in its use. Heavy equipment is used periodically to till the land and plant, water, and harvest the crops. The proposed action would convert a portion of the farmland to riparian and oak woodland. This process of tree planting would include heavy equipment, trucks for transportation, and other farm equipment that would be used within the parameters of standard farming practices. This equipment is expected to be powered by fossil fuels such as diesel, gasoline and natural gas, all of which are considered GHG emitters.

Emissions of GHGs are a concern because all GHGs and GHG emissions contribute, on a cumulative basis, to global climate change. Global climate change has the potential to result in sea level rise (which may result in flooding of low-lying areas), to affect rainfall and snowfall levels (which may lead to changes in water supply and runoff), to affect temperatures and habitats (which in turn may affect biological and agricultural resources), and to result in many

other adverse effects. Increases in GHG concentrations in the Earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of infrared radiation produced by incoming solar radiation. Some GHGs occur naturally and are necessary for keeping the Earth's surface habitable. However, increases in the concentrations of these gases in the atmosphere above natural levels during the last 100 years have increased the amount of infrared radiation that is trapped in the lower atmosphere, intensifying the natural greenhouse effect and resulting in increased global average temperatures.

The increase in the global average temperature of the Earth's near-surface air and oceans since the mid-20th century and its projected continuation is called global warming. Warming of the climate system is now considered by a vast majority of the scientific community to be unequivocal, based on observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (IPCC, 2014).

The Intergovernmental Panel on Climate Change (IPCC) concludes that variations in natural phenomena (such as solar radiation and volcanoes) produced most of the warming from preindustrial times to 1950 and had a small cooling effect afterward. However, since 1950, increasing GHG concentrations resulting from human activity (such as fossil fuel burning and deforestation) have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion (DWR, 2012).

The effects of warming of the Earth's atmosphere and oceans affect global and local climate systems. In addition to temperature increases, observational evidence from all continents and most oceans show that many natural systems are being affected by regional climate changes (IPCC, 2018). Based on growing evidence, there is high confidence that the following effects on hydrologic systems are occurring: (1) increased runoff and earlier spring peak discharge in many glacier and snow-fed rivers; and (2) warming of lakes and rivers in many regions, with effects on thermal structure and water quality (IPCC, 2008).

With respect to California's water resources, the most important effects of global climate change have been changes to the water cycle and sea level rise. Over the past century, the precipitation mix between snow and rain has shifted in favor of more rainfall and less snow (Mote and Sharp, 2016, USGCRP, 2017), and snowpack in the Sierra Nevada is melting earlier in the spring (Kapnick and Hall, 2009). The average early-spring snowpack in the Sierra Nevada has decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage (DWR, 2008). These changes have major implications for water supply, flooding, aquatic ecosystems, energy generation, and recreation throughout the state.

Greenhouse Gas Emissions

As defined in Section 38505(g) of the California Health and Safety Code, the principal GHGs of concern are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3). With the exception of NF3, these are the same gases named in the USEPA's Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act. Each of the principal GHGs has a long atmospheric lifetime (one year to several thousand years) and is globally well mixed. In addition, the potential heat trapping ability of each of these gases varies significantly from one another. On a 100-year timescale, methane is about 25 times as potent as CO2, nitrous oxide is about 298 times as potent as CO2, and sulfur hexafluoride is about 22,800 times more potent than CO2 (IPCC, 2007). Conventionally, GHGs have been reported as CO2 equivalents (CO2e). CO2e takes into account the relative potency of non-CO2 GHGs and converts their quantities to an equivalent amount of CO2 so that all emissions can be reported as a single quantity.

The primary human-made processes that release these gases include: (1) the burning of fossil fuels for transportation, heating, and electricity generation; (2) agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and (3) industrial processes that release smaller amounts of high global warming potential gases, such as SF6, perfluorocarbons, and hydrofluorocarbons. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth's capacity to remove CO2 from the air and altering the Earth's surface reflectance. The major sources of GHGs that are relevant to the BSLMS project are transportation sources and construction emissions. These are discussed in greater detail below.

Construction emissions are generated when materials and workers are transported to and from construction sites and when machinery is used for construction activities such as clearing and grubbing, digging, grading, disking, and building. Emissions from construction activities are generated for shorter periods than operational emissions; however, GHGs remain in the atmosphere for hundreds of years or more, so once released, they contribute to global climate change unless they are removed through absorption by the oceans or by terrestrial sequestration.

Environmental Effects

Significance Criteria

On August 1, 2016, the Council on Environmental Quality (CEQ) issued final guidance on considering GHG emissions and climate change in NEPA reviews. This guidance was withdrawn on April of 2017; however the withdrawal of this guidance does not change any law, regulation, or other legally binding requirement (NEPA, 2017). For this analysis, an effect pertaining to climate change was analyzed based on State CEQA Guidelines Appendix G (14 CCR 15000 et seq.), Corp policy, and professional judgment. An effect is considered significant

if it would conflict with an applicable plan adopted for reducing GHG emissions. Fundamental to this, are the recommendations that agencies should consider the following risks:

1) The potential effects of a proposed action on climate change as indicated by assessing GHG emissions; and,
2) The effects of climate change on a proposed action and its environmental impacts.

For this analysis, an effect pertaining to climate change was analyzed based on professional judgment, final NEPA guidance from the CEQ, and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.). An effect is considered significant if it would conflicts with an applicable plan adopted for reducing GHG emissions.

SMAQMD has local jurisdiction over the project area. In January 2008, the SMAQMD adopted a resolution that recommends the following GHG thresholds of significance:

- Construction phase of projects: 1,100 metric tons of Carbon dioxide equivalent (CO2e) per year
- Operational phase of land development projects: 1,100 metric tons of CO_2e per year; and
- Stationary source projects: 10,000 direct metric tons of CO_2e per year.

The SMAQMD recommends that GHG emissions from construction activities be quantified and disclosed, a determination regarding the significance of these GHG emissions be made based on a threshold determined by the lead agency, and BMPs be incorporated to reduce GHG emissions during construction, as feasible and applicable (see table 6 below)

Table 5. Estimated Greenhouse Gas Emissions for the BSLMS.

GHG	Pounds Per Day	Tons per Year	CEQA Threshold Metric Tons per Year
SO_x	0.01	0.00	
CH_4	0.24	0.01	
N_2O	0.01	0.00	
Total CO_{2e}	805.77	32.23 metric tons/year	1,100

Calculated using SMAQMD Road Construction Emissions Model version 8.1.0 (SMAQMD, 2018)

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. The site conditions would remain as they are now, dry land farming with seasonal use of heavy equipment, trucks, and generators. However, the Corps would still be required to mitigate for the ARCF 2016 project's riparian impacts by other means. If SAFCA decided to move forward without Corps participation, the effects would be consistent with the Proposed Action.

Alternative 2 – Proposed Action

Construction of the BSLMS would result in GHG emissions due to fuel combustion from on-site construction vehicles, as well as indirect emissions from the electricity used to operate machinery. In addition to construction vehicles, there would be GHG emissions from the workforce vehicles.

Construction of the BSLMS would cause a negligible increase in GHG emissions that would be less than significant. Over the course of construction the project would produce an estimated 31.90 tons of carbon dioxide produced and 32.23 metric tons of CO2e. This is well within the standard of 1,100 tons per year during construction phase. The trees and scrub brush that are proposed to be planted as part of the proposed action would sequester carbon. This process would continue over the life span of each plant and would be dependent on species and disturbances. The successful completion of this mitigation site would create riparian that would sequester carbon from the atmosphere, clean water released through transpiration, and increase organic matter in the soil. There would also be a reduction in the temperature of the soil and moisture loss from the soil via shade and leaf litter.

While emissions associated with this alternative would not reach GHG thresholds, these emissions would still contribute to the overall global cumulative GHG emissions. As a result, during implementation of the proposed action, the Corps and SAFCA would implement avoidance and minimization measures, as discussed below, to reduce GHG emissions to the greatest extent feasible.

Avoidance and Minimization Measures

The avoidance and minimization measures discussed in the Air Quality section above would reduce GHG emissions as well and would be implemented to reduce emissions to the greatest extent feasible. In addition, measures such as the following would also be implemented to the extent feasible to further minimize GHG emissions.

- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site.
- Shut down equipment if not in operation after 5 minutes in accordance with California Code of Regulations, Title 13, sections 2449(d)(3) and 2485.
- All construction equipment would be maintained in proper working condition according to the specifications of the manufacturer. All construction equipment would pass inspection by a certified mechanic to show it is in proper working condition before it is operated on the project site.

3.2.3 Cultural Resources

Section 3.9 of the 2016 ARCF GRR EIS/EIR adequately describes the regulatory setting and analytical methodology for this resource.

Existing Conditions

Few archaeological materials dating to the Paleo-Indian or the Lower Archaic time periods (13,500-7,500 Before Present [B.P.]) have been found in the Central Valley of California. During the Middle Archaic Period (7,500-2,500 B.P.), broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Subsistence economies were more diversified, possibly including the introduction of acorn processing technology. Human populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established, primarily along major waterways. The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (2,500-1450 B.P.). Exchange systems become more complex and formalized. Evidence of regular, sustained trade between groups was seen for the first time.

The BSLMS project area is situated within the lands traditionally occupied by the Nisenan, or Southern Maidu. Nisenan houses were domed structures covered with earth and tule or grass that measured 10–15 feet in diameter. Brush shelters were used in the summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses that were covered in earth and tule or brush and had a central smoke hole at the top and an east-facing entrance. Another common village structure was a granary, which was used for storing acorns. Euro-American contact with the Nisenan began with infrequent excursions by Spanish explorers and Hudson Bay Company trappers traveling through the Sacramento-San Joaquin Valley in the early 1800s. In general, Nisenan lifeways remained stable for centuries until the early to middle decades of the 19th century (Wilson and Towne 1978).

On October 27, 2016, a records search was conducted at the North Central Information Center (NCIC) by GEI archaeologist Jesse Martinez, MA, RPA for the BSLMS. The records search identified one previously reported resource in BSLMS. Resource P-34-000075 (CA-SAC-48), an apparently destroyed prehistoric habitation mound, is crossed by the access road leading to the BSLMS project area. P-34-000075 was first identified in 1934 by Heizer and revisited in 1974 by Johnson. Heizer noted that the mound had been scraped off and used to form the foundation for a barn. During the archaeological pedestrian survey, no evidence of the resource was identified within the proposed project area of potential effect (APE), and project activities would not cause ground disturbance in the recorded location.

Environmental Effects

Significance Criteria

An alternative is considered to have a significant adverse effect on cultural resources if it diminishes the integrity of a resource that is eligible for the National Register of Historic Places (NRHP) to the extent it's no longer eligible. To be eligible for the NRHP, a cultural resource must meet at least one of four significance criteria: contribution to broad patterns of history, association with a significant person, distinctive design or style, or potential to yield information important in history or prehistory. The resource must also have integrity, which is the ability to convey its significance. The seven aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. Types of adverse effects can include: physical destruction, damage, or alteration; alteration of the character of the setting; introduction of elements that diminish setting, feeling, or association; neglect; and transfer, lease, or sale.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. Site conditions would remain as they are now, dry land farming with seasonal use of heavy equipment, trucks, and generators. However, the Corps would still be required to mitigate for ARCF 2016 project riparian impacts by other means. If SAFCA decided to move forward without Corps participation, the effects would be consistent with the Proposed Action.

Alternative 2 – Proposed Action

The proposed project is being conducted in accordance with the Programmatic Agreement (PA) for the American River Common Features Project, executed on September 10, 2015. A records search completed on October 27, 2016 revealed one previously recorded resource along an access road within the APE of the BSLMS. A more detailed survey of the BSLMS mitigation APE was later conducted on November 7 to 11, 2016. No new cultural resources were discovered during the second survey.

As mentioned above, P-34-000075 is a prehistoric mound site first identified in 1934 by Heizer and revisited in 1974. Heizer noted that the mound had been disturbed. The location was last visited by Far Western Archaeological Group archaeologists in 2007, who noted the resources were no longer present. An access road for the project extends through the site; the access road route follows an existing raised gravel road. During the archaeological pedestrian survey November 7th thru the 11th of 2016, no evidence of the resource was found.

Letters were sent to potentially interested Native American tribes and the State Historic Preservation Office (SHPO) on June 1, 2018, describing the proposed project APE for the BSLMS. Letters to Tribes that had identified sacred sites on the Native American Heritage Commission (NAHC) sacred lands file included a request for information about those sacred sites. On June 12, 2018, the Corps received an email from the Mechoopda Tribe indicating that the tribe did not require consultation and had no comments. The tribe requested to be contacted

in the event of a discovery of cultural resources in the project APE. The Corps sent an email to the Mechoopda Tribe acknowledging its request to be notified in the event of a discovery.

No known Historic Properties are present in the BSLMS APE. Section 106 consultation with SHPO regarding the inventory, determination of eligibility, and finding of effects for the BSLMS is ongoing and will be completed before a decision is reached on the findings of this Supplemental EA/IS.

Avoidance and Minimization Measures

Procedures for the discovery of previously unknown Historic Properties are provided in Stipulation IX of the Programmatic Agreement (PA), which is included with the 2016 ARCF GRR EIS/EIR as Appendix C. This stipulation shall be followed in order to minimize any effects to Historic Properties that may be encountered during construction activities.

3.2.4 Land Use

Section 3.3 of the 2016 ARCF GRR EIS/EIR adequately describes the regulatory setting and analytical methodology for this resource.

Existing Conditions

The site and well are owned by the Sacramento Area Sewer District (SASD). The site is traditionally farmed using dry land farm practices. Dry land farming refers to crop production without irrigation, such as winter wheat and oats. Dry land farming is common in areas that receive less than 20 inches of rain per year. According to the Natural Resources Conservation Service and the California Department of Conservation the BSLMS would include farmland that would be considered "Prime farmland" if it was irrigated. The property is also not under contract for Williamson Act lands.

A small number of buildings and a home are near the site or on the opposite side of the North Beach levee from the site. None of these structures would be removed in order to develop the BSLMS.

Environmental Effects

Significance Criteria

Effects to land use are considered significant if they would result in any of the following:

- Conflict with any applicable land use plan, policy, or regulation;
- Conflict with approved Habitat Conservation Plans or Natural Community Conservation Plans;

- Physically divide an established community; or,
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.
- Convert a significant amount of prime farmland, unique farmland, or farmland of statewide importance to non-agricultural use; or Conflict with existing zoning for agricultural use. As a federal agency the permanent conversion of prime and/or unique farmland is of concern and this impact would be disclosed.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. Site conditions would remain as they are now; dry land farming with seasonal use of heavy equipment, trucks, and generators. However, the Corps would still be required to mitigate for the ARCF 2106 project's riparian impacts by other means. If SAFCA moved forward without Corps participation, the effects would be consistent with Proposed Action.

Alternative 2 – Proposed Action

The Farmland Protection Policy Act requires federal agencies to mitigate adverse effects to farmland where practicable, including taking action to avoid, minimize, and repair or reduce effects, or compensate for the effect by replacing or substituting important farmland acres. The BSLMS Project will remove 24 acres of farmland from Sacramento County's 246,840 acres of productive agricultural land (US Department of Agriculture, 2012). This is a 0.00097% of the total acreage in Sacramento County.

The 24 acres of farmland that would be taken out of production would be replaced with trees, native grasses and shrubs/scrub to create riparian habitat to mitigate for the effects of the ARCF 2016 Project. The Farmland Protection Policy Act protects prime farmland from conversion to other uses; however, after completion the project would allow for agriculture to continue on 140 acres of the property. As a part of the action, SAFCA will also be installing a new pump and well system to allow irrigation and improve the productivity of the remaining 140 acres, which would mitigate the loss of 24 acres of farmland to less than significant. The remaining acreage will be designated as Prime Farmland with the justification that the condition has been improved due to the new irrigation.

The County of Sacramento General Plan expresses a need to keep farm land productive and prevent encroachment by urban and recreational land uses. The BSLMS would remain riparian habitat in perpetuity, serving as a buffer to urban encroachment, and a sound barrier to the township of Freeport. Additionally, once the site is established and vegetation has matured, the riparian habitat will serve as a wind/wave buffer to the remaining prime farmland at the site. This added benefit meets the Sacramento County General Plan objective of controlling erosion on farmlands. The BSLMS Project would also benefit agriculture by increasing soil carbon

content from leaf litter due to the presence of riparian habitat, and by increasing moisture availability due to the pumping effect of tree root systems. The BSLMS Project would not impact the nearby residences or businesses. There are no existing Habitat Conservation Plans or Natural Community Conservation Plans applicable to the site.

Avoidance and Minimization Measures

The planting of the riparian woodlands would include the installation of a new water well and pump that would remain for future agricultural use. The new well and improved irrigation systems would allow the farm land to produce higher yields on a smaller amount of land, enable crops that produce a greater financial return than those from dry land farming, and would make this land Prime Farmland. With the implementation of this mitigation measure, effects to agriculture would be less than significant.

3.2.5 Noise

Section 3.13 of the 2016 ARCF GRR EIS/EIR adequately describes the regulatory setting and analytical methodology for this resource.

Existing Conditions

Permanent, stationary sensitive receptors in close proximity to the project area include residences and small businesses within 200 to 800 feet; although existing trees may filter some noise. Temporary and mobile sensitive receptors include recreationists in the area. Any wildlife using the area as nesting or resting habitat would also be sensitive receptors. Existing sources of noise in the vicinity include Interstate 5, which produces consistent highway traffic noise, and is approximately 2,300 feet east of the nearest residence. Highway 160 is also adjacent to the project site and residences, although traffic volumes are lower than I-5. Boating noise from Cliff's Marina and noise from periodic use of heavy farm equipment is normal for the area during regular operation hours.

The Sacramento County noise ordinance states that a standard of 55 dBA is applied during the hours from 7:00 a.m. to 10:00 p.m., and a standard of 50 dBA is applied during the hours from 10:00 p.m. to 7:00 a.m. for residential and agricultural uses. The noise ordinance also states that construction noise is exempt during the hours from 6:00 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays (Chapter 6.68 Noise Control, County of Sacramento Code).

Environmental Effects

<u>Significance Criteria</u>

Construction of the BSLMS would cause a significant adverse impact from noise if construction would result in any of the following:

- A substantial temporary or permanent increase in ambient noise levels in the study area above the existing levels.
- Exposure of sensitive receptors to excessive noise levels (those levels that exceed the Sacramento County noise ordinance, discussed above).
- Exposure of sensitive receptors or structures to ground borne vibration.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. Site conditions would remain as they are now, dry land farming with seasonal use of heavy equipment, trucks, and generators. If SAFCA decided to move forward without Corps participation, the effects would be consistent with the Proposed Action.

Alternative 2 – Proposed Action

The preferred action would involve use of heavy construction equipment during a 2 to 5 month period beginning in July 2019 with the following noise profiles:

- 100 dBA: tractor engine at work
- 85 dBA: tractor engine at idle

Construction of the BSLMS would generate noise due to operation of heavy equipment for site preparation, vehicle traffic accessing the site, and other equipment used to plant vegetation. However, these effects would be equivalent to the ambient noise level prevailing under pre-project conditions because the site currently experiences use of tractors and other farm machinery during regular agricultural production. Additionally, the sensitive receptors are all located on the opposite side of a levee or the far side of existing riparian woodlands from the construction site, significantly buffering adverse noise effects. Finally, project construction would occur during a brief eight to twelve week window, from August 2019 through October 2019. Thereafter noise generation on the 24 acres to be converted to woodlands would drop to nearly zero and would remain significantly below present levels in perpetuity. As a result, adverse noise effects from the construction of the BSLMS would be less than significant. Additionally, once established, the riparian habitat would act as a sound barrier to future agricultural noise, improving future conditions for the sensitive receptors. Construction activities would not include pile driving or other impulsive devices and thus would not create ground borne vibrations.

Avoidance and Minimization Measures

Noise effects from construction of the BSLMS would be less than significant, but the following measures would still be implemented to further minimize noise levels:

- Notices with information including, but not limited to, contractor contact telephone number(s) and proposed constructions dates and times would be displayed in a conspicuous manner, such as on construction site fences;
- Construction equipment would be equipped with factory-installed muffling devices, and all equipment would be operated and maintained in good working order to minimize noise generation.

3.2.6 Special Status Species

Section 3.8 of the 2016 ARCF GRR EIS/EIR describes the regulatory setting and the methodology for this resource.

Existing Conditions

Present use of the BSLMS is dry land farming. During the growing season the site is planted with various crops, primarily row crops or grains. During the non-growing season the ground is bare and disturbed soil.

The site is bordered by the North Beach Lake levee, the Sacramento River, scattered rural residences to the west; agricultural land and the Bartley Cavanaugh Golf Course to the north; Morrison Creek and its riparian corridor to the south/southeast; and Interstate 5 to the east. Currently this landscape is attractive to foraging species, such as voles, and their predators, such the Swainson's hawk. The Federal and State-listed species with the potential to occur within the project area are listed in Appendix A. Special status species that have the potential to occur within the proposed BSLMS footprint are discussed in detail below.

Raptors and Migratory Birds

Raptors and other migratory birds that are known to commonly occupy areas like the project site include, among others, red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk *(Accipiter cooperii)*, red-shouldered hawk *(Buteo lineatus)*, American kestrel (*Falco sparverius*), Swainson's hawk (*Buteo swainsoni*), and great horned owl (*Bubo virginianus*) (Corps, 2016). Various migratory bird species may also nest in trees and shrubs in areas adjacent to the project site. Among these migratory birds found in habitat like the project site, the Swainson's hawk is considered to be particularly sensitive, as it is protected by State law. As a result, it is discussed in further detail below.

Swainson's Hawk. As described in the 2016 ARCF EIS/EIR Section 3.8, the Swainson's hawk is a migratory bird species protected by the Migratory Bird Treaty Act (MBTA) (50 CFR 10.13), listed as a species of concern, and State ESA listed as threatened. A 2005 survey by California Department of Fish and Game Wildlife (CDFW) estimated 1,830 pairs of nesting hawks in the California Central Valley. Swainson's hawks typically occur in California only during the breeding season (March through September) and winter in Mexico and South America. Swainson's hawks begin to arrive in the Central Valley in March; nesting territories are usually established by April, with incubation and rearing of young occurring through August (Estep 2003).

Swainson's hawks are found most commonly in grasslands, low shrublands, and agricultural habitats that include large trees for nesting. Nests are found in riparian woodlands, roadside trees, trees along field borders, and isolated trees. Corridors of remnant riparian forest along drainages contain the majority of known nests in the Central Valley (England, Bechard, and Houston 1997; Estep 1984; Schlorff and Bloom 1984). Nesting pairs frequently return to the same nest site for multiple years and decades.

Prey abundance and accessibility are the most important features determining the suitability of Swainson's hawk foraging habitat. In addition, agricultural operations (*e.g.*, mowing, flood irrigation) have a substantial influence on the accessibility of prey and thus create important foraging opportunities for Swainson's hawk. Swainson's hawks feed primarily on small rodents, but also consume insects and birds. Although the most important foraging habitat for Swainson's hawks lies within a 1-mile radius of each nest (City of Sacramento, Sutter County, and TNBC 2003), Swainson's hawks have been recorded foraging up to 18.6 miles from nest sites (Estep 1989).

Invertebrates

Valley Elderberry Longhorn Beetle. The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)* (VELB) is a federally listed insect known for a long tube-like body with long antennae. Adults are active from March to June. VELB are not known to travel far from where they hatch. Females will lay their eggs on the bark of an elderberry bush (*Sambucus mexicana*) and upon hatching the larvae burrow into the stems and consume the inside of the elderberry stems. Lasting an estimated two years, the larval stage makes up most of the lifespan of the VELB.

Because VELB spend most of their life cycle as larvae within an elderberry bush, detection of the species is difficult but begins with identification of the insect's host plant, the elderberry bush. Therefore, when an elderberry bush is found, there is potential for VELB to occur. A survey was performed on February 8th, 2019 and no elderberry bushes were found in the construction footprint. If an elderberry bush is found on site with a stem greater than one inch in diameter the U. S. Fish and Wildlife Service (USFWS) guidelines, "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999 would be implemented.

Environmental Effects

Significance Criteria

Effects on special status-species are considered significant if an alternative would result in any of the following:

- Substantial direct or indirect reduction in growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Act (ESA).
- Substantial direct mortality, long-term habitat loss, or lowered reproductive success of Federal or State-listed threatened or endangered animal or plant species or candidates for Federal listing.
- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, or species of special concern.
- Have an adverse effect on a species' designated critical habitat.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. Site conditions would remain as they are now, dry land farming with seasonal use of heavy equipment, trucks, and generators. However, the Corps would still be required to mitigate for ARCF 2016 Project riparian impacts by other means. If SAFCA decided to move forward without Corps participation, the effects would be consistent with the Proposed Action.

Alternative 2 – Proposed Action

Building the BSLMS Project would bring a long term benefit for species already present in the area and may attract other federally-listed species, such as the western yellow-billed cuckoo. Plant diversity and density would dramatically increase within the 24 acres of new woodland habitat. While the construction phase of the project could cause temporary disturbances to sensitive species present in the area, conversion of the site to a permanent woodland would end annual plowing and discing across 24 acres, potentially allowing these species to take up permanent residence.

Raptors and Other Migratory Birds. Impacts to raptors or other migratory birds could occur if nesting birds are present along the perimeter of the site during the BSLMS construction period. Nesting birds disrupted by project activities could abandon their nests.

BSLMS construction is scheduled to be performed between July and October 2019, overlapping the latter part of breeding season for certain migratory bird species. In order to avoid or minimize the potential for adverse effects to migratory birds, surveys for nesting raptors would be conducted within one-half mile of the proposed construction site in spring 2019, and migratory bird nesting surveys would be conducted prior to the commencement of construction. If the surveys determine that nesting birds are present, the Corps would coordinate with CDFW and USFWS to determine any necessary avoidance and minimization measures that would need to be implemented.

Swainson's Hawk. Swainson's hawk nests are normally found in mature trees near foraging grounds and water, usually removed from urban areas. Swainson's hawks show a preference for the intermittent foraging habitat of agricultural fields such as those present at the BSLMS. CDFW protocol surveys would be conducted in spring of 2019 to establish whether the species is present, how many individuals are present, and if there are any active nests.

Disturbance due to noise and equipment use by this project would not be outside that of normal farming practices because the project would be using similar equipment; therefore it is unlikely that adverse effects above the existing baseline would occur. Any effects would be anticipated to be less than significant. Conducting nesting bird surveys in spring 2019 prior to construction would minimize this risk further.

Nesting surveys would be conducted before project construction, and if active nests are observed, the Corps would coordinate with CDFW and USFWS to determine the appropriate avoidance and minimization measures to implement to ensure that any adverse effects to Swainson's hawks would be reduced to less than significant.

Long-term effects of the BSLMS are likely to be beneficial for the Swainson's hawk. The project includes raptor perches and large species of trees that when matured are known to be used by raptors for nesting. In addition, the adjacent agricultural fields would continue to provide foraging habitat for the Swainson's hawk. The increased amount of habitat would also decrease the amount of future disturbance from road noise and agriculture activities.

Valley Elderberry Longhorn Beetle. No known elderberry bushes have been identified in the construction area of the site. If an elderberry bush is found on site with a stem diameter greater than one inch, it would be protected in place according to the USFWS protocols, so as not to disturb VELB that may be present. The creation of new riparian habitat in the project area would likely benefit VELB long term as elderberry shrubs are included in the mitigation site design. Monitoring of the planted elderberry shrubs for survival would be coordinated with the USFWS, and would be included as part of the success criteria and the associated benefits to VELB.

Avoidance and Minimization Measures

Since construction of the proposed mitigation site would not result in effects to special status species, and since the resulting riparian habitat would be beneficial to listed species

such as the VELB and Swainson's hawk, no further mitigation would be required for these species. In order to ensure that potential effects to special status birds are less than significant, the following measure would be implemented during construction:

- Surveys would be conducted within one-quarter mile of the proposed construction site in spring 2019, and nesting surveys would be conducted prior to the commencement of construction. If the surveys determine that nesting birds are present, USACE would coordinate with CDFW and USFWS to determine any necessary avoidance and minimization measures that would need to be implemented.

3.2.7 Traffic

Section 3.10 of the 2016 ARCF GRR EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

The BSLMS is west of Interstate 5 and is surrounded by agricultural land. The site is accessible from the River Road/Highway 160 and from farm roads. River Road/Highway 160 may experience a small increase in traffic over the Annual Average Daily Traffic (AADT) of 7,700 vehicles, but the effect would only last during the two to five month period of construction and would not likely lead to any significant disruption of traffic. A rail line runs along the top of the Sacramento River's east bank levee and ends at Cliff's Marina, just west of the project site. This line is used principally for weekend tourist rail excursions operated by the California State Railroad Museum. Roads within the BSLMS are private and their use would have no effect on regional traffic.

A small amount of commuter traffic accumulates during morning and evening hours along Highway 160 where the roadway leads into central Sacramento. Immediately south of Freeport, California some residential and tourist traffic may occur near local vineyards. The closest business that could be impacted by construction-related traffic is Cliff's Marina.

Environmental Effects

Significance Criteria

The proposed action would result in a significant effect related to transportation and circulation if it:

- Substantially increases traffic in relation to existing traffic load and capacity of the roadway system.
- Substantially disrupts the flow of traffic.
- Exposes people to significant public safety hazards resulting from construction activities on or near the public road system.

- Reduces the supply of parking spaces sufficiently to increase demand above supply.
- Causes substantial deterioration of the physical condition of nearby roadways.
- Results in inadequate emergency access.
- Disrupts railroad services for a significant amount of time.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be built. Site conditions would remain as they are now; dry land farming with seasonal use of heavy equipment, trucks, and generators. If SAFCA moved forward without Corps participation, the effects would be similar to the Proposed Action.

Alternative 2 – Proposed Action

The site is located off public roadways and railroads, therefore no decrease in available public parking is anticipated. In addition, construction activities would not disrupt railway operations, or expose the public to safety hazards. There are no planned lane closures; however, there may be a need to guide heavy equipment on to the site from Hwy 160, requiring flaggers and ground guides, which may briefly slow local traffic. If this assistance is necessary, signage would be posted to the north and south in advance of the work being done. Signage would warn of slowdown and potential stops ahead, which would alleviate the disruption of the traffic flow.

The BSLMS is in a rural area with low traffic volumes and the additional vehicles associated with project construction would be unlikely to significantly increase the level of congestion adjacent to the site. If construction vehicles and equipment cause damage to local roads, the contractor would be required to restore roadways to preconstruction conditions at the completion of construction. The nearby railroads lines would not be affected by project construction. Emergency vehicle access to area roads would not likely be impacted by BSLMS implementation. As a result, with the use of the avoidance and minimization measures discussed below, effects to area traffic would be less than significant.

Avoidance and Minimization Measures

In order to ensure that potential effects to traffic from project-related construction vehicles are less than significant, the following measures would be implemented during construction:

- The construction contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on nearby roads.

- Emergency vehicle access would be maintained at all times. Coordination with local emergency responders by the contractor to inform them of the construction activities would be required by the contractor.
- The construction contractor would assess any damage to roadways caused by construction and would repair all potholes, fractures, or other damages.

- The construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within on-site designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area in a location that would not cause traffic congestion and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.

Through the implementation of these measures, only a minor temporary impact to traffic is anticipated, with an overall effect that would not be significant.

3.2.8 Vegetation and Wildlife

Section 3.6 of the 2016 ARCF GRR EIS/EIR describes the regulatory setting and the methodology for this resource.

Existing Conditions

Present use of the BSLMS is traditional dry land farming. Because of annual plowing and soil disturbance and removal of non-agricultural vegetation, the site provides degraded and intermittent habitat, such as shelter and forage for various wildlife species. Raptors may hunt the smaller ground-foraging animals, such as voles, which forage on seeds, insects, and crops during the growing and fallow seasons.

Environmental Effects

Significance Criteria

Effects on vegetation and wildlife are considered significant if the proposed action would result in any of the following:

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial effects on a sensitive natural community, including federally protected wetlands and other waters of the U.S., as defined by Section 404 of the Clean Water Act.

- Substantial reduction in the quality or quantity of important habitat, or access to such habitat for wildlife species.
- Substantial conflict with the Sacramento County Tree Preservation Ordinance or the City of Sacramento Protection of Trees Ordinance.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be constructed and site conditions would remain as they are now; dry land farming with seasonal use of heavy equipment, trucks, and generators. If SAFCA moved forward without Corps participation, the effects would be near as if the Corps participated with a mitigation action at the site so effects would be similar to the Proposed Action.

Alternative 2 – Proposed Action

Due to the current agricultural usage of the BSLMS, little native habitat is present within the construction footprint. All work would be landside of the Sacramento River levee and waterside of the North Beach Lake levee, but would not impact the levee and would not include any removal of wetlands or other sensitive habitats, as none are present.

Open foraging habitat for raptors and bird species may be temporarily impacted during construction as ground dwelling prey associated with agriculture, such as gophers and voles, would be temporary disturbed by the short term presence of contractor personnel and equipment and increased noise on site. However, since construction is timed for the end of nesting season, it is unlikely that this effect would be significant. If nesting birds are present, coordination with USFWS and CDFW would occur to determine appropriate avoidance and minimization measures to ensure that any effects would be less than significant.

After construction is complete, the project would create 24 acres of new permanent riparian habitat, leading to a possible increase of wildlife presence and diversity as the riparian vegetation becomes established. In the early stages of succession, shrubs may appear to be dominating the site, but over time newly planted trees would mature, limiting sunlight below and causing shrubs to top out. When the site reaches maturity, the layers of an established riparian forest would become identifiable. Figures 4 and 5 show two possible cross sections of the BSLMS.

No riparian trees or shrubs bordering the project footprint would be removed prior to or during construction. The work in the soil preparation phase does include ripping and discing of ground that could damage roots but the site is already disturbed by regular agricultural practices, preventing root intrusion from neighboring riparian shrubs or trees into the site.

Effects associated with any trimming of trees and the temporary removal of grasses would be less than significant after post-construction restoration and the maturation of the mitigation. The grasses would be reseeded to repair herbaceous plant damage, and any trimmed trees would fill in naturally.

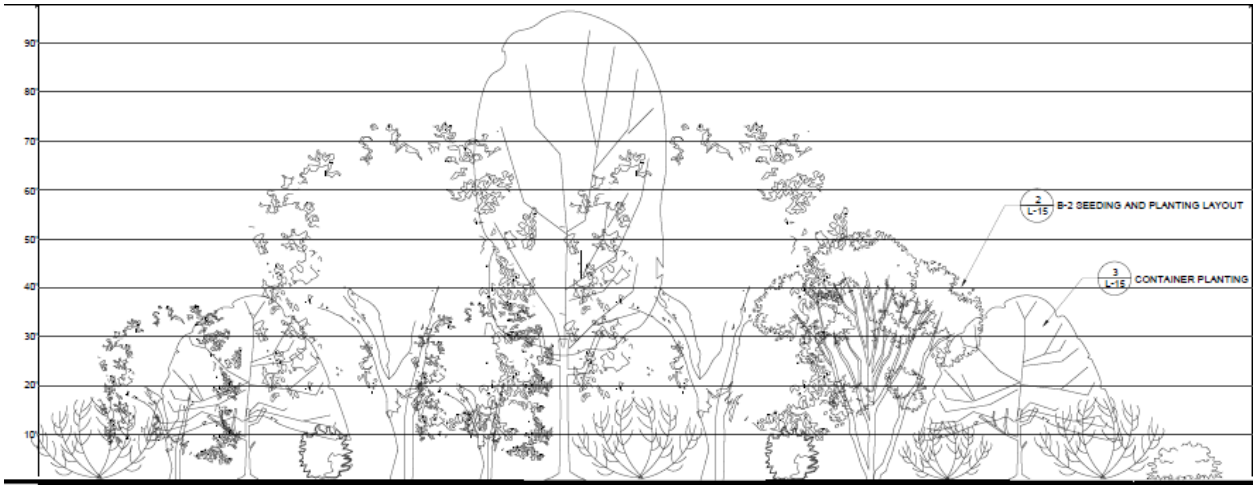

Figure 4. Potential Cross Section of the BSLMS.

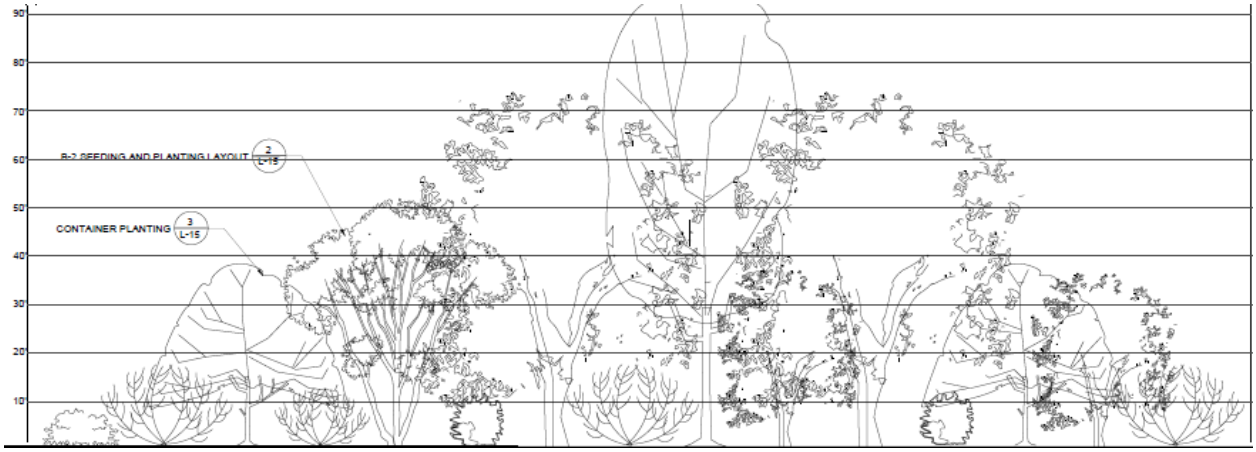

Figure 5. Potential Cross Section of the BSLMS.

When finished, the BSLMS is expected to create an estimated 24.2 acres of riparian habitat. At a 2:1 mitigation ratio, this 24 acres of new riparian habitat would mitigate for up to 12 acres of riparian habitat that may be removed from the Sacramento River levees during construction of the ARCF 2016 Project. The new riparian habitat would be self-sustaining, with mature trees that offer perching, foraging, and nesting habitat for birds of prey, and shelter opportunities to prey species. The majority of the site is currently bare dirt or in seasonal crops. The long-term benefits of the new 24 acres of riparian habitat would substantially exceed any direct or indirect short term adverse impacts to vegetation and wildlife caused by construction of the BSLMS.

Avoidance, Minimization, and Mitigation Measures

The following recommendations from the USFWS Coordination Act Report would be implementation to minimize effects to vegetation and wildlife to less than significant.

- Woody vegetation that needs to be removed within the construction footprint should be removed during the non-nesting season (September 1st to February 15th) to avoid affecting active bird nests.
- Avoid impacts to migratory birds nesting in trees along the access routes and adjacent to the project sites by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. This would especially apply if construction begins in spring or early summer. Pre-construction surveys would be conducted by a qualified biologist. If an active nest is located, an appropriate buffer to minimize impacts shall be determined by the qualified biologist. No work shall occur within the buffer until the young have fledged, or as otherwise determined by a qualified biologist. The California Department of Fish and Wildlife survey protocol for Swainson's hawk would suffice for the pre-construction survey for raptors (CDFW, 2010):
- Avoid future impacts to the site by ensuring that all vehicles, equipment, and vegetative materials are free of contaminants, such as invasive weed species or toxic materials.
- Minimize project impacts by reseeding all disturbed areas, including staging areas, at the completion of construction with native forbs and grasses. Reseeding should be conducted just prior to the rainy season to enhance germination and plant establishment. The reseeding mix should include species used by and beneficial for native pollinators.
- Minimize the impact of removal and trimming of all trees and shrub limbs greater than 2-inches in diameter by having these activities supervised and/or completed by a certified arborist.
- If tree trimming is conducting during the nesting season (February 1st through August 31st), a qualified biologist would conduct a nesting bird survey.
- Need for mitigation plantings would be assessed at a ratio of 2:1 compensation for the acreage of riparian habitat lost to ARCF 16 levee improvement construction. Approximately 24 acres of riparian habitat would be created under the proposed action, offsetting approximately 12 acres of loss to the riparian corridor along the Sacramento River.
- Existing riparian trees or shrubs would not be removed; however if overhanging vegetation from established trees impedes work, that vegetation might need to be trimmed.

- If a tree is damaged to the point it must be removed, the replacement tree would be the same species. If the damaged tree is non-native, then it would be replaced with a native tree species, which would enhance the quality of the environment,
- All trees and shrubs currently located within the construction footprint would be protected in place with temporary fencing placed one and a half times the drip line of each tree or scrub.
- Grasses removed due to construction activities would be restored through reseeding. If any non-woody plants not planned for removal are damaged, they would be replaced in-kind. Areas would be reseeded with native vegetation, such as creeping wild rye (*Elymus triticoides*).
- Reseeded areas would be periodically monitored until 85 percent vegetation cover is achieved, or until May 1st of the year following the reseeding. If reseeded areas do not reach the required amount of cover by May 1st, additional reseeding may be required. While not considered a part of the overall success criteria for the mitigation site this is a benchmark for the contractor.

These avoidance, minimization and mitigation measures would reduce any adverse construction impacts to vegetation and wildlife to less than significant.

3.2.9 Water Quality

Section 3.5 of the 2016 ARCF GRR EIS/EIR adequately describes the regulatory setting and analytical methodology for this resource. The existing conditions for water quality in the Sacramento River watershed are also thoroughly discussed in Section 3.5 of the EIS/EIR.

Existing Conditions

The project area is located fully on the landside of the Sacramento River levee, with no surface water features or wetlands in the impact area. The BSLMS is located on the waterside of the North Beach Lake levee in the Morrison Creek floodplain. However, the floodplain is only activated during high water events; during normal conditions, including the proposed construction period, Morrison Creek's channel is approximately 300 feet to the south west of the site. The Sacramento River is approximately 500 feet away to the west of the site.

Environmental Effects

Significance Criteria

An effect to water quality from construction of the BSLMS is considered significant if it would:

- Violate water quality standards or waste discharge requirements;

- Substantially deplete groundwater supplies or interfere substantially with ground water recharge;
- Substantially degrade water quality; and/or,
- Alter regional or local flows resulting in substantial increases in erosion or sedimentation.

Alternative 1 – No Action

Under the No Action Alternative, the BSLMS would not be constructed and site conditions would remain as they are now; dry land farming with seasonal use of heavy equipment, trucks, and generators. There would be no change to water quality. In the event of a local area flood, significant degradation of water quality conditions in the watershed could occur, particularly if a levee were breached. If SAFCA moved forward without Corps participation, the water quality effects would be similar to the Proposed Action.

Alternative 2 – Proposed Action

The BSLMS would have no adverse effects on ground water or soil water retention. Wooded riparian areas hold moisture in the soil better than tilled farm land. The project's creation of 24 acres of new woodlands would increase available water near the surface and decrease runoff. The proposed trees and understory of native grasses and shrubs would also aid in the retention of top soil, reducing erosion from rain and wind.

Construction of BSLMS would not fill any waters of the United States, so neither a Clean Water Act Section 401 Water Quality Certification nor a Section 404 permit are necessary. Prior to construction, the contractor would prepare a Storm Water Pollution Prevention Plan (SWPPP) as part of their National Pollutant Discharge Elimination System Construction General Permit, including a spill prevention, control, and countermeasure plan based on best management practices (BMPs) to prevent and respond to any discharges of contaminated storm water into Morrison Creek at the south east corner of the project site.

By applying a SWPPP, BMPs, and in the absence of any Waters of the U.S., the project would comply with all applicable water quality laws and requirements. Adverse effects on surface water quality during project construction are unlikely, but would be minor and short term if they were to occur.

Avoidance, Minimization, and Mitigation Measures

Prior to construction, the contractor would be required to prepare and implement a SWPPP and would obtain a National Pollution Discharge Elimination System permit, as applicable, and a Construction General Permit from the Central Valley Regional Water Quality Control Board (CVRWQCB), including a spill prevention plan detailing the construction activities to take place, BMPs to be implemented to prevent any discharges of contaminated

stormwater into waterways, and inspection and monitoring activities that would be conducted. By applying these requirements, possible adverse effects on water quality due to construction of the project would likely be less than significant.

4.0 CUMULATIVE EFFECTS

NEPA and CEQA require the consideration of cumulative effects of the proposed action, combined with the effects of other projects. NEPA defines a cumulative effect as an effect on the environment that results from the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 C.F.R. § 1508.7). The CEQA Guidelines define cumulative effects as "two or more individual effects which, when considered together, compound or increase other environmental impacts" (C.C.R. Section 15355).

The cumulative effects of the overall ARCF 2016 project were covered in the ARCF GRR EIS/EIR (Corps, 2016). The thorough cumulative analysis in the EIS/EIR is incorporated by reference. But the temporal scope of the analysis was necessarily vague in the EIS/EIR, therefore, for the purposes of the BSLMS, the temporal scope of the cumulative effects analysis in this EA will consider past projects that continue to affect the project area in the summer/fall of 2019, projects that are under construction in the summer/fall of 2019 and reasonably foreseeable future projects that would impact the future operation of the BSLMS.

4.1 Past, Present, and Reasonably Foreseeable Future Projects

The ARCF GRR EIS/EIR considered a number of other area projects in its cumulative effects analysis for the overall ARCF 2016 project. However, since the BSLMS footprint is so limited in area compared to the overall ARCF 2016 project, the list below includes past, present, and reasonably foreseeable future projects within the narrower geographic and temporal scope of the BSLMS.

4.1.1 Lower American River Common Features Project

Congressional authorizations in WRDA 1996 and WRDA 1999 enabled the Corps, CVFPB, and SAFCA to undertake various improvements to the levees along the north and south banks of the American River, as well as the east bank of the Sacramento River. Under WRDA 1996, this involved the construction of 26 miles of slurry walls along the left and right banks of the American River. The WRDA 1999 authorization included a variety of additional levee improvements, such as levee raises and levee widening improvements, to ensure that the levees could pass an emergency release of 160,000 cubic feet per second. The WRDA 1996 and 1999 projects were completed in 2016, with mitigation site monitoring ongoing.

4.1.2 American River Common Features, Natomas Basin Project

In 2007, the Natomas Levee Improvement Project was authorized as an early-implementation project initiated by SAFCA in order to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and the Corps have

initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally-authorized American River Common Features Project. Construction of this early implementation project was completed in 2013. In 2014, the Natomas Basin Project was authorized by Section 7002 of Water Resources Reform and Development Act (WRRDA) of 2014 (Public Law 113-121). Construction on Reach I and Reach D began in 2018, with Reach H anticipated to begin in 2018. Reaches A, B, E, F, G, and are still in design.

4.1.3 Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project (SRFCP). The SRBPP was instituted in 1960 to be constructed in phases. Bank protection has generally been constructed on an annual basis. Phase I was constructed from 1963 to 1975, and consisted of 436,397 linear feet of bank protection. Phase II was authorized in 1974 for 405,000 linear feet of bank protection. The SRBPP directs the Corps to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by federal flood control project levees. Beginning in 1965, erosion control projects at twelve sites covering 16,141 linear feet of the south and north banks of the lower American River have been implemented. This is an ongoing project and additional sites requiring maintenance would continue to be identified indefinitely until the remaining authority of 4,966 linear feet is exhausted over the next 3 years. WRDA 2007 authorized an additional 80,000 linear feet of bank protection to Phase II.

4.1.4 West Sacramento GRR

The West Sacramento GRR study determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the West Sacramento GRR is to bring the 50-miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements would address: (1) seepage, (2) stability, (3) levee height, and (4) erosion concerns along the West Sacramento levee system. Measures to address these concerns would include: (1) seepage cutoff walls, (2) seepage berms, (3) stability berms, (4) levee raises, (5) flood walls, (6) relief wells, (7) sheet pile walls, (8) jet grouting, and (9) bank protection. The GRR was authorized in WRDA 2016, and in the Fiscal year 2019 work plan received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency's Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along Sacramento River in the northern portion of the city near the neighborhood of Bryte, and improvements to the south levee of the Sacramento Bypass. In addition, the Southport setback levee is currently under construction as part of a local effort, which includes all of the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin.

4.1.5 Folsom Dam Safety and Flood Damage Reduction Project

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project (JFP), addressed the dam safety hydrologic risk at Folsom Dam and improved flood protection to the Sacramento area. Several activities associated the project included: the Folsom Dam Auxiliary Spillway, static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam. The Folsom JFP was completed in fall 2017.

4.1.6 Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual (WCM) is being updated to reflect authorized changes to the flood management and dam safety operations at Folsom Dam to reduce flood risk in the Sacramento area. The WCM Update would utilize existing and authorized physical features of the dam and reservoir, specifically the recently completed auxiliary spillway. Along with evaluating operational changes to utilize the additional capabilities created by the auxiliary spillway, the WCM Update would assess the use of available technologies to enhance the flood risk management performance of Folsom Dam to include a refinement of the basin wetness parameters and the use of real time forecasting. Further, the WCM Update would evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study would result in an Engineering Report as well as a Water Control Manual implementing the recommendations of the analysis.

4.1.7 Folsom Dam Raise

Construction of the Folsom Dam Raise project would likely follow completion of the JFP and the WCM projects The Dam Raise project includes raising the right and left wing dams, Mormon Island Auxiliary Dam, and dikes 1-8 around Folsom Reservoir by 3.5 feet. The Dam Raise project also includes the three emergency spillway gates and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). Similar to the ARCF 2016 Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction is scheduled to begin in 2019 with Dike 8 construction, followed by Dike 7 in 2020; MIAD, the Left and Right wing of Folsom Dam, and Dikes1-3 in 2021, and Dikes 4-6 in 2022. The ecosystem restoration projects are not scheduled at this time.

4.1.8 American River Common Features 2016 Project

The greater ARCF 2016 project is scheduled for construction from 2019 through 2024. The project would involve construction of levee improvements along the American and Sacramento River levees as well as proposed improvements to the Natomas East Main Drainage Canal (NEMDC) east levee and Magpie Creek. The levee improvements scheduled for

implementation include construction of cutoff walls, erosion protection, seepage and stability berms, relief wells, levee raises, and a small stretch of new levee. In addition, the Corps would widen the Sacramento Weir and Bypass. The project would also involve construction of a number of mitigation sites in the area.

The Corps, SAFCA, and the CVFPB propose, as the first action associated with the ACRF 2016 Project, to construct an approximately 400 foot long stability berm against the landside slope of the Sacramento River east levee along Front Street near downtown Sacramento. The purpose of the Reach D Contract 1 (RDC1) stability berm is to reinforce and reduce seepage through this section of the Sacramento River East Levee (SREL). An EA/IS/MND was released for public review in December 2018. Construction is anticipated to begin in June 2019.

4.1.9 Delta Shores Development Project

Delta Shores is an approximately 800-acre master planned development that would include an estimated 1.3 million square feet of planned retail, an estimated 250,000 square feet of hotel and commercial uses, and an estimated 4,900 residential units. Most of the project site is located east of I-5 at Cosumnes River Boulevard, east of Freeport and north of the Sacramento Regional County Sanitation District (SRCSD) Wastewater Treatment Plant Bufferlands. The Beach Lake Levee (operated and maintained by SAFCA) is adjacent to the Delta Shores southern boundary (east of I-5). Approximately 100 acres of the Delta Shores project site is located on the west side of I-5, and abuts the Sacramento River east levee. In this western portion of Delta Shores, medium- and high-density residential housing would be developed on the north side of Stonecrest Avenue. Adjacent to the housing, and Freeport Boulevard, a park would be developed. Medium- and low-density residential housing would be developed on the south side of Stonecrest Avenue.

Cosumnes River Boulevard was recently extended by approximately 3.5 miles (from the east side of SR 99 to I-5), and a new I-5 interchange was constructed to provide regional connectivity for local residents and access to the future Delta Shores development (particularly the shopping center); the road and interchange improvements were completed in 2015. Construction on the shopping center began in 2016, and the complex opened in 2017.

4.2 Cumulative Effects Analysis

4.2.1 Air Quality

Air emissions from the proposed action would combine with other local construction actions scheduled for the summer of 2019 to create a cumulative effect, including the Natomas Basin Project, the multiple redevelopment projects, and the RDC1. The incremental addition of each of these actions occurring simultaneously could contribute to emissions of pollutants that could exceed local threshold levels. However, the emissions associated with the construction of BSLMS are extremely low and would be further minimized through adherence to BMPs to

reduce discharges the maximum extent practicable through adherence to best management practices. Additionally, each local project would be required to implement mitigation to reduce its emissions. Any project that exceeds the thresholds would be required to purchase offset credits to mitigate for the impacts to air quality. The contribution to these effects from the construction of the BSLMS Project are extremely low based on the modeling conducted in Section 3.2.1 above. As a result, this project's cumulative effect is less than significant, and further reduced with the implementation of the proposed avoidance and minimization measures.

4.2.2 Climate Change

It is unlikely that any single project by itself could have a significant impact on the environment with respect to GHGs. However, the cumulative effect of human activities has been linked to quantifiable changes in the composition of the atmosphere, which, in turn, have been shown to be the main cause of global climate change (IPCC 2014). Therefore, the analysis of the environmental effects of GHG emissions is inherently a cumulative impact issue. While the emissions of one single project would not cause global climate change, GHG emissions from multiple projects throughout the world could cause a cumulative effect with respect to global climate change.

Similar to air quality, the cumulative emissions associated with construction of the RDC1, the BSLMS, and the Natomas Basin project, in addition to local redevelopment actions, could contribute to a local exceedance of the SMAQMD threshold for GHG emissions during the 2019 construction season. Each of these projects would be required to reduce their GHG emissions to the maximum extent practicable in accordance with State policies. Similarly, the BSLMS is proposing to implement additional emission reduction measures as detailed in Sections 3.2.1 and 3.2.2 in order to minimize effects to the maximum extent practicable. The GHG emissions associated with this action are minimal, particularly when compared to their contribution to the cumulative condition in the Sacramento region. With the implementation of the minimization measures the cumulative effects would be less than significant.

In addition, many of the related projects are flood risk management projects. By implementing these projects, the action agencies would be reducing potential future emissions associated with flood fighting and future emergency actions. The related projects could combine to reduce long-term potential GHG emissions in the Sacramento metropolitan area. With the implementation of appropriate minimization measures the cumulative effects would be less than significant. After the construction phase of the project is complete, 24 acres of new riparian woodland would be created which would contribute a minor but measurable benefit to the atmosphere by absorbing CO2 and releasing oxygen in increasing quantities as plants and trees mature.

4.2.3 Cultural Resources

Cumulative effects to cultural resources were covered to an acceptable level in the ARCF GRR EIS/EIR (Corps, 2016). The relevant new information for this EA/IS incorporates the temporal scope of the project and identifies the projects being constructed concurrently with this action (i.e., the redevelopment projects, Natomas Basin Project, and RDC1 seepage berm). The effects associated with these actions remain consistent with those described in the EIS/EIR, including cumulative effects associated with the described past and future projects.

4.2.4 Land Use

The ARCF GRR EIS/EIR did not identify any potential cumulative effects to land use from implementation of the overall project in combination with other local projects. Construction of the mitigation sites such as the BSLMS, in combination with development of the nearby Delta Shores, would create a cumulative conversion of agricultural land to other uses. However, while Delta Shores is developing homes and retail spaces, the mitigation site is restoring 24 acres of historical, lost riparian habitat. These two transitions are not creating an equal level of effect. Conversion of an agricultural land use to woodland habitat would benefit the region by creating and preserving a diminishing natural resource in the face of nearby urbanization.

4.2.5 Noise

The only project identified in the EIS/EIR in close enough proximity to the ARCF levee repair work to create a cumulative noise effect is the West Sacramento GRR. The only development project in close enough proximity to the BSLMS to create a cumulative effect is the western portion of the Delta Shores project. Construction of a residential neighborhood is planned for a parcel approximately 4,400 feet north of the BSLMS. The schedule for development of this site is currently unknown, however it is unlikely to be under construction at the same time as BSLMS. With the implementation of appropriate minimization measures the cumulative noise effects would be less than significant and no additional minimization measures would be required.

4.2.6 Special Status Species

Section 3.2.6 of this document established that the only listed species with the potential to occur in the BSLMS are the VELB and the Swainson's hawk. In addition, potential effects to migratory birds from implementation of BSLMS were assessed above. The Delta Shores development project would also likely affect migratory birds and the Swainson's hawk due to the removal of trees and agricultural lands in the vicinity of the BSLMS, which would result in a net loss of nesting and foraging habitat for these species. However, the BSLMS would contribute an additional 24 acres of nesting habitat upon the vegetation reaching maturity, which would help offset the cumulative effects associated with the removal of trees from both Delta Shores and the

ARCF 2016 project. There is also the incidental benefit of the foraging habitat provided adjacent to the BSLMS from the existing actively managed agricultural fields. Due to these benefits provided by implementation of the mitigation site, cumulative effects associated with these other related actions would be less than significant.

4.2.7 Traffic

The ARCF GRR EIS/EIR did not identify any potential cumulative effects to traffic from implementation of the overall project, in combination with other local projects, since access and haul routes had not been identified at the time of the study.

As the BSLMS project area can be quickly accessed from the freeway via Cosumnes River Blvd to River Road/Highway 160, this route is not likely to interrupt any concurrent projects in the vicinity, such as Delta Shores. While Delta Shores is also accessed by the Cosumnes River Blvd exit from Interstate 5, Delta Shores lies to the east of I-5 while the BSLMS is to the west, so very little traffic overlap is expected. The cumulative effects from the construction of the BSLMS project would be less than significant with the implementation of the minimization measures.

4.2.8 Vegetation and Wildlife

No removal of trees or woody vegetation is planned at this site, since the project purpose is to mitigate for the loss of riparian woodlands caused by the ARCF 2016 Project levee improvements. As described above, the Delta Shores development project would also involve the removal of trees and agricultural lands, which could have an effect on wildlife in the vicinity of the BSLMS. However, the approximately 24 acres of trees and woody vegetation that is scheduled to be planted to create the BSLMS would increase the habitat quantity locally for wildlife and potentially allow for an increase in diversity of local species. As a result, the project will incrementally reduce the cumulative adverse effects to vegetation and wildlife caused by other area projects.

4.2.9 Water Quality

The ARCF GRR EIS/EIR identified potential cumulative effects to water quality resulting from the combined effects of waterside construction and related increased turbidity in waterways. Cumulative effects associated with water quality can be fairly localized, depending on the magnitude of the effects and how quickly they can be contained. Since the BSLMS has a relatively small 24 acre footprint, and is not adjacent to any open waterway (Morrison Creek is approximately 375 feet away), any potential impacts to surface water quality would be minimized through implementation of required permits and BMPs. No other local action in the watershed, when combined with the BSLMS, is expected to create a cumulative adverse effect to water quality.

5.0 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL STATUES AND LAWS

5.1 Federal Laws and Regulations

5.1.1 Clean Air Act of 1972, as amended (42 U.S.C. 7401, et seq.)

Full Compliance. The Clean Air Act (CAA) established National Ambient Air Quality Standards (NAAQS) and requires state and local agencies to develop State Implementation Plans (SIPs) for areas that exceed the *de minimus* thresholds. As the *de minimus* thresholds would not be exceeded by construction of the BSLMS, there is no need for further consultation.

5.1.2 Clean Water Act of 1972, as amended (33 U.S.C. 1251, et seq.)

Full Compliance. The Clean Water Act (CWA) is the primary federal law governing water quality. In California, the U. S. Environmental Protection Agency (USEPA) has delegated regulatory authority under the CWA to state agencies, the California Regional Water Quality Control Board (RWQCB) in the case of the proposed project. The BSLMS would not introduce any fills into waters of the U.S., therefore, no permits would be required and the BSLMS would be in full compliance with the CWA.

5.1.3 Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)

Full Compliance. The United States Fish and Wildlife Service (USFWS) is responsible for regulation and enforcement of laws related to plants and wildlife, including freshwater fish, while National Marine Fisheries Service (NMFS) is responsible for marine species and anadromous fish. Both agencies were consulted during preparation of the 2015 ARCF GRR Final EIS/EIR and a record of those consultations can be found in the 2015 ARCF GRR Final EIS/EIR. There is no habitat for nor presence of any listed species at the proposed action site. Therefore, no further consultation is required.

5.1.4 Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661, et seq.)

Full Compliance. The Fish and Wildlife Coordination Act (FWCA) requires federal agencies to consult with USFWS, NMFS, and California Department of Fish and Wildlife (CDFW) to determine a project's impacts to fish and wildlife and determine the best measures to mitigate those impacts. Both USFWS and CDFW were consulted during preparation of the 2015 ARCF GRR Final EIS/EIR and the Corps received a Coordination Act Report (CAR) from USFWS. In accordance with the CAR, seeding to replace grasses lost during project construction shall be of native grasses along with seeds of native flowering plants to aid

pollinators. USFWS made recommendations for the entire project to address potential effects to vegetation and wildlife (Appendix J of the 2015 ARCF GRR FEIS/FEIR). The Corps intends to implement the recommendations covered in Appendix J of the 2015 ARCF GRR FEIS/FEIR, as practicable. No further consultation is required for this action.

5.1.5 Migratory Bird Treaty Act of 1936, as amended (16 U.S.C. 703, et seq.)

Full Compliance. The Migratory Bird Treaty Act (MBTA) protects migrating birds from harm due to federal projects through various treaties and conventions between the United States, Canada, Japan, Mexico, and Russia. Migratory birds are protected through pre-construction surveys for nesting migratory birds and implementation of buffer areas if nesting birds are found. As the MBTA was thoroughly addressed in the 2015 Final EIS/EIR, Section 5.1, and the contractor shall utilize buffer zones, if necessary, during BSLMS construction, the proposed action is in compliance with the MBTA.

5.1.6 National Environmental Policy Act of 1969, as amended (42 U.S.C. 431, et seq.)

*Partial Complian*ce. NEPA applies to all federal actions that affect the human environment, including the proposed action. This Supplemental EA/IS was prepared in compliance with NEPA. Full compliance with NEPA will be achieved when this Supplemental EA/IS is finalized and either a FONSI is signed and approved by the Sacramento District Commander, or an EIS is prepared in the event the District Commander concludes that the project would cause significant adverse environmental impacts not identified here.

5.1.7 National Historic Preservation Act of 1966, as amended (54 U.S.C. 300101)

Full Compliance. The National Historic Preservation Act protects and preserves historical and archaeological sites in the United States of America. The act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices. The only historic site found within the BSLMS footprint has been so degraded that it retains no present historical value. No new adverse impacts would be possible.

5.2 State and Local Laws and Regulations

5.2.1 California Clean Air Act of 1988, California Health and Safety Code § 40910, et seq.

Full Compliance. Section 3.2.1 of this document discusses the effects of the proposed Project on local and regional air quality. The California Air Resources Board (CARB) is responsible for the development, implementation, and enforcement of California's motor vehicle pollution control program, GHG statewide emissions and goals, and development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act

(CCAA) requires projects to determine whether emission sources and emission levels significantly affect air quality based on Federal standards established by the USEPA and State standards set by CARB. SMAQMD has local jurisdiction over the Project area. The analysis in Section 3.2.1 shows that construction-related emissions are not expected to exceed local thresholds of the CCAA as administered by SMAQMD or annual general conformity thresholds. Additionally, SMAQMD recommends that a lead CEQA agency consider a GHG emissions threshold of 1,100 metric tons/year. Although the Proposed Action would cause GHG emissions from its use of construction-related equipment, emissions are not expected to exceed local thresholds established by SMAQMD. Additional BMPs will be incorporated to reduce GHG emissions during construction, to the maximum extent feasible.

5.2.2 **California Environmental Quality Act (CEQA) of 1970**, California Public Resources Code § 21000-21177

Partial Compliance. The Central Valley Flood Protection Board (CVFPB), as the non-federal sponsor and CEQA lead agency, will undertake activities to ensure compliance with the requirements of this Act. CEQA requires the full disclosure of the environmental effects, potential mitigation, and environmental compliance of the Project. Adoption of this EA/IS and a mitigated negative declaration (MND) by the CVFPB will provide full compliance with the requirements of CEQA.

5.2.3 **California Endangered Species Act**, 14 C.C.R. § 783-786.6

Full Compliance. This Act requires non-federal agencies to consider the potential adverse effects to State-listed species. As discussed in Section 3.2.6 of this document, activities associated with the Proposed Action are not anticipated to adversely impact any State-listed species, so no further action is required to achieve compliance with this Act.

5.2.4 **California Fish and Game Code** §3503

Full Compliance. Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.3 states that it is unlawful to take, possess, or destroy any raptors, including nests or eggs. As discussed in Section 3.2.6 of this document, activities associated with the proposed action are not anticipated to adversely impact nesting birds, raptors, or their eggs.

5.2.5 **Porter-Cologne Water Quality Control Act of 1970**

Full Compliance. This Act requires that each of the State's nine Regional Water Quality Control Boards (RWQCBs) prepare and periodically update basin plans for water quality control. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction extends to all "Waters of the State," defined as any surface water or groundwater, including saline waters, within the State's boundaries. With implementation of applicable permits and BMPs, there would be no effects to surface waters

adjacent to the BSLMS. Additionally, since the project is limited to the creation of riparian habitat, it is anticipated that there would be no effects to groundwater. The contractor would be required to implement a NPDES permit to ensure that any pollutants associated with construction are appropriately addressed during implementation and would not seep into the soil layers. With these permits and BMPs, the BSLMS would be in full compliance with this Act.

6.0 COORDINATION AND REVIEW OF THE DRAFT SUPPLEMENTAL EA/IS

The Draft Supplemental EA/IS was released for public review on March 28, 2019 for 30 days to agencies, organizations, and individuals known to have a special interest in the project. Copies of the draft Supplemental EA were made available for viewing at https://www.spk.usace.army.mil/Media/USACE-Project-Public-Notices/, local public libraries, and provided by mail upon request. Coordination with all the appropriate Federal, State, and local government agencies is complete.

7.0 FINDINGS

This Supplemental EA/IS evaluated the environmental effects of the proposed BSLMS. Potential adverse effects to the following resources were evaluated in detail: air quality, climate change, cultural resources, land use, noise, special status species, traffic, vegetation and wildlife, water quality, and cumulative effects.

The conclusions of the Supplemental EA/IS, based on field research, and coordination with other agencies indicate that the proposed project would have no significant long-term adverse effects on environmental resources. Short-term effects during construction would either be less than significant or minimized to less than significance using best management practices.

Based on this evaluation, the proposed project meets the definition of a FONSI as described in 40 CFR 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and therefore an environmental impact statement is unnecessary and a FONSI has been prepared and accompanies this Supplemental EA/IS.

Based on this evaluation, the proposed project meets the requirement of a mitigated negative declaration, which may be prepared when there is no substantial evidence that a project or any of its aspects could result in significant impacts to the environment (CEQA Guidelines Section 15070). Therefore, a mitigated negative declaration has been prepared and accompanies this Supplemental EA/IS.

8.0 LIST OF PREPARERS

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Appendix A
Federal and State-listed Species Lists

Federally Listed Fish and Wildlife Species That May Occur at BSLMS.

Species	Status	Habitat	Potential to Occur on Site
Crustaceans			
Vernal Pool Fairy Shrimp *Branchinecta iynchi*	Threatened	Inhabits vernal pools and swales	No Potential to occur. No suitable habitat is present in the action area.
Vernal Pool Fairy Shrimp *Lepidurus packardi*	Endangered	Inhabits vernal pools and swales	No Potential to occur. No suitable habitat is present in the action area.
Fish			
Delta Smelt *Hypomesus transpacificus*	Endangered	Spawns in tidally influenced freshwater wetlands and seasonally submerged uplands; rears seasonally in inundated floodplains, tidal marsh, and the Delta. Critical habitat is listed for this site.	No potential to occur. No suitable habitat present in the project area. Work is being performed on the landside of the nearby levee and is agriculture land.
Central Valley Spring-run Chinook Salmon *Oncorhynchus tshawytscha*	Endangered	Spending the majority of its life in the colder water of the northern Pacific this species returns to the Sacramento River to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Central Valley Winter-run Chinook Salmon *Oncorhynchus tshawytscha*	Endangered	Spending the majority of its life in the colder water of the northern Pacific this species returns to the Sacramento River to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Central Valley Steelhead *Oncorhynchus mykiss*	Endangered	Spawning in the gravel bottomed fresh water rivers this population migrates to the ocean where they grow larger than their freshwater counterparts. They would return to the rivers they spawned in to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Green sturgeon *Acipenser medirostris*	Endangered	Spawning in the gravel bottomed fresh water rivers this population migrates to the ocean where they grow larger than their freshwater counterparts. They would return to the rivers they spawned in to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Amphibians			
California Red-legged Frog *Rana draytonii*	Threatened	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent riparian vegetation and typically without predatory fish. Requires adequate hibernacula, such as small-mammal burrows and moist leaf litter.	No potential to occur. Work is being performed in non-wetlands and is traditionally agriculture land.

Species	Status	Habitat	Potential to Occur on Site
California Tiger Salamander *Ambystoma californiense*	Endangered	Prefers grasslands and low foothills, ponds and creeks with emergent riparian vegetation and typically without predatory fish. Requires adequate hibernacula, such as small-mammal burrows and moist leaf litter.	No potential to occur. Work is being performed in non-wetlands and is traditionally agriculture land.
Reptiles			
Giant Garter Snake *Thamnophis gigas*	Threatened	Streams, sloughs, ponds and irrigation/drainage ditches; also requires upland refugia not subject to flooding during the snake's inactive season.	No potential to occur. Work is in an arid agriculture area.
Insects			
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	Threatened	Inhabits elderberry shrubs, primary in riparian woodland and scrub habitat.	No elderberry shrubs are present in the project area. If found on site, host bushes would be protected in place.

State-listed Species with the Potential to Occur at BSLMS.

Species Name	State Status	Habitat	Potential to Occur on Site
Cooper's hawk *Accipiter cooperii*	Watch List (WL)	Nests in woodlands and riparian woodlands.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Tricolored blackbird *Agelaius tricolor*	State Candidate Endangered (CE), Species of Special Concern (SSC)	Highly colonial species, nests primarily in Central Valley in or near freshwater marsh, swamp, and wetlands.	Potential to nest/forage in vicinity. No tree/shrub removal. Majority of construction occurring outside breeding season.
Burrowing owl *Athene cunicularia*	SSC	Nests underground in open habitats with low-growing vegetation.	The project site is an actively worked agricultural field that does not provide undisturbed nesting habitat for burrowing owl. Owls have not been observed during site visits.
Ferruginous hawk *Buteo regalis*	WL	Nests and forages in open grasslands, scrub, and woodlands.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.

Swainson's hawk *Buteo swainsoni*	State Threatened (T)	Breeds in grasslands with scattered trees, riparian areas, and agricultural lands with adjacent open foraging areas that support rodent populations.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
White-tailed kite *Elanus leucurus*	Fully Protected (FP)	Open grasslands, meadows, or marshes for foraging close to woodlands for nesting.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Western pond turtle *Emys marmorata*	SSC	Ponds, marshes, and rivers with basking sites and adjacent sandy banks or open, grassy areas within 0.5km for nesting.	No in-water work. Turtles may be present in Morrison Creek, just south of the project area. However, no work will occur in or directly adjacent to Morrison Creek, and the project site is an actively worked agricultural field that does not provide nesting habitat for pond turtle.
Merlin *Falco columbarius*	WL	Nests in trees in open woodlands, grasslands, tidal estuaries, and open country.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Song sparrow ("Modesto" population) *Melospiza melodia*	SSC	Locally abundant in areas of the Central Valley with extensive wetlands and riparian corridors.	Potential to nest/forage in vicinity. No tree/shrub removal. Majority of construction occurring outside breeding season.
Double-crested cormorant *Phalacrocorax auritus*	WL	Colonial nester on coastal cliffs, offshore islands, and in riparian woodlands along lake margins in the interior of the state.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Sacramento splittail *Pogonichthys macrolepidotus*	SSC	Found in the Delta, Suisun Bay, and associated marshes.	No in-water work.
Longfin smelt *Spirinchus thaleichthys*	T, SSC	Found in open waters of estuaries.	No in-water work.

American badger *Taxidea taxus*	SSC	Most abundant in drier, open stages of shrub, forest, and grassland habitat with friable soils for digging burrows.	Badger may be a transient species through the project area. However, the site is an actively worked agricultural field and no badger burrows have been observed. No impact.
Giant garter snake *Thamnophis gigas*	T	Highly aquatic. Found in freshwater marsh and low gradient streams, drainage canals, and irrigation ditches.	Garter snakes may be present in Morrison Creek, south of the project area. However, no work will occur in or directly adjacent to Morrison Creek. No suitable habitat within project limits.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds.	Potential to nest/forage in vicinity. No tree/shrub removal. Majority of construction occurring outside breeding season.

California Natural Diversity Database report March 4th, 2019.

Appendix B
Responses to Comments
Beach Stone Lakes Mitigation Site
Draft Environmental Assessment/Initial Study
Sacramento County, California

A. Letter from the U.S. Department of Homeland Security, FEMA Region IX, dated April 8, 2019

1. Comment: If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any development must not increase base flood elevation levels. The term development means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed prior to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

   Response: While the mitigation area is in a FEMA designated floodway, the area is in a backwater area of the floodplain and not used for water conveyance. In essence, the water in this area has a velocity of zero so additional vegetation has no effect on flood stages from a loss of a conveyance perspective. Typical floodway encroachments that FEMA would require a more stringent review is when fill or obstruction are placed in an area of flowing water causing the water to be either slowed which raises water surface elevations or sped up to pass the same amount of water through a smaller cross section. Since this is a backwater area, neither condition applies nor is an increase in water surface expected as a result of "loss of cross section" for conveyance. While there is the possibility of a higher water surface elevation as a result of lost storage in the floodplain it is negligible. The Beach Stone Lake area itself is part of a huge floodplain (over 19,000 acres in size during the 100-year event) and the Beach Stone Lakes Mitigations Site itself is less than 25 acres (less than 0.001% of the floodplain). By comparison the loss of storage due to vegetation is negligible.

B. Letter from the Delta Stewardship Council, dated April 26, 2019

1. Comment: Based on the project location and scope, as provided in the Draft SEA/IS/MND, and the covered action early consultation meeting held on February 2, 2019, with Council staff and staff from the California Department of Water Resources (DWR) and the Sacramento Area Flood Control Association (SAFCA), the proposed project appears to meet the definition of a covered action set forth in Water Code section 85057.5(a) because it:

i. Would occur in whole or in part within the boundaries of the Legal Delta (Water Code section12220) or Suisun Marsh (Public Resources Code section 29101). (Cal. Water Code section 85057.5(a)(1).) This project would occur in part within the boundaries of the Legal Delta.
ii. Would be carried out, approved, or funded by the State or a local public agency. (Cal. Water Code section 85057.5(a)(2).) This project would be carried out by the Board, DWR, and SAFCA, which are public agencies.
iii. Would have a significant impact on the achievement of one or both of the coequal goals or the implementation of a government-sponsored flood control program to reduce risks to people, property, and State interests in the Delta. It appears that this project would have an impact on the coequal goal of ecosystem restoration, as well as flood control and risk to people, property, and State interests because it has elements of both restoration and flood control.
iv. Would be covered by one or more of the regulatory policies contained in the Delta Plan (23 CCR section 5003-5015). Delta Plan regulatory policies that may apply to the proposed project are discussed below.

The Delta Reform Act requires the State or local agency that proposes to undertake a covered action to file a certification of consistency with the Delta Plan prior to initiation of implementation of the project. (Cal. Water Code section 85225.)

Response: The Board agrees that the BSLMS Project meets conditions 1 and 2 of the definition of a covered action.

The Board does not agree that the BSLMS Project meets conditions 3 or 4 of the definition of a covered action because the coequal goals and the regulatory policies pertain to ecosystem restoration, not mitigation actions. As was discussed during the early consultation meeting that took place on February 1, 2019, and during the follow-up meeting on May 8, 2019, the term restoration is not equatable to mitigation. The term "restoration" is defined in Water Code section 85066 as "the application of ecological principles to restore a degraded or fragmented ecosystem and return it to a condition in which its biological and structural components achieve a close approximation of its natural potential, taking into consideration the physical changes that have occurred in the past and the future impact of climate change and sea level rise."

The BSLMS Project is compensatory mitigation for the removal of riparian habitat, as required by the 2015 U.S. Fish and Wildlife Service Biological Opinion and 2015 Fish and Wildlife Coordination Act Report issued for the overall ARCF 2016 Project. While the BSLMS Project will plant riparian vegetation, the project is compensatory mitigation required by law. The site was chosen based on its proximity to the impact sites, availability, and potential to meet success criteria. Even though the mitigation site will provide habitat value, language in the Water Code

explicitly refers to restoration projects as a covered action and does not mention mitigation projects or actions. As such, the Project will not have a significant impact on the achievement of the coequal goal of ecosystem restoration.

While the BSLMS Project will be used to mitigate for a government-sponsored flood control project in the Delta, the project itself is not a flood control project. A Certification of Consistency will be filed as needed for future planned ARCF 2016 levee improvement projects that occur within the Delta and meet the conditions of a covered action.

2. Comment: The following section describes regulatory Delta Plan policies that may apply to the proposed project based on the available information in the Draft SEA/IS/MND. [The comment letter lists GP1 subsection (b)(2) and subsection (b)(3); ER P2; ER P5; and DP P2].

   Response: Per the Delta Stewardship Council's Covered Action Checklist, if a project does not meet the definition of a covered action, no further steps are required, and the applicant does not proceed to determining if the project is covered by a Delta Plan regulatory policy. Additionally, there are no policies that apply to mitigation projects. As discussed above, mitigation actions are not comparable to restoration projects.

3. Comment: Delta Plan Policy DP P2 (23 CCR section 5011) reflects one of the Delta Plan's charges to protect the Delta as an evolving place by requiring the siting of water management facilities, ecosystem restoration, and flood management infrastructure to avoid or reduce conflicts with existing uses or planned future uses when feasible. DP P2 applies if mitigation habitat for flood management infrastructure *is required* within the Delta, as is the case with the proposed project. (emphasis added)

   Response: As cited in the Delta Plan and in 23 CCR section 5011, DP P2 does not refer to "mitigation habitat for flood management infrastructure." This policy refers to the siting of water management facilities, ecosystem restoration, and flood management infrastructure, but does not mention mitigation nor link mitigation habitat and flood management infrastructure together. Furthermore, this mitigation project is not required to be implemented within the Delta, per the 2015 U.S. Fish and Wildlife Service Biological Opinion or the 2015 Fish and Wildlife Coordination Act Report. The siting of the mitigation project is based on its proximity to anticipated future project impacts and the availability of the land. Therefore, DP P2 does not apply to the Project.

4. Comment: In addition to the specific comments above, the SEA/IS/MND Regulatory Setting should include a discussion of the Delta Plan and the specific

applicable regulatory policy or policies for each resource section to which a Delta Plan policy is applicable.

Response: As discussed above, the Board does not agree that any regulatory policies under the Delta Plan are applicable to the Project.

5. Comment: As the Board proceeds with design, development, and environmental impact analysis of the project, the Council encourages the Board, DWR, and SAFCA to continue to engage Council staff in early consultation (prior to submittal of a certification of consistency) to discuss project features and avoidance and minimization measures that would promote consistency with the Delta Plan. As part of the Council, Delta Science Program staff are also available to provide further consultation and guidance regarding appropriate application of best available science.

   Response: The Board appreciates the Council's consultation and guidance and will engage Council staff as design and environmental analysis proceeds for other components of the ARCF 2016 Project that are within the legal Delta and meet the definition of a covered action.

C. Letter from the Sacramento Metropolitan Air Quality Management District, dated April 8, 2019

1. Comment: Table 2 incorrectly lists the State Status for the SVAB as attainment of the 24-hour and annual PM10 standards (page 19).

   Response: The error has been changed to correctly state as "non-attainment.

2. Comment: The narrative referencing Tables 3 and 4 are incorrect (pages 20-21).

   Response: The error has been changed to correctly state the correct table numbers.

3. Comment: Table 4 demonstrates that PM10 emissions exceed the Sac Metro Air District daily threshold of 80 pounds/day (page 21). The narrative in the Avoidance and Minimization Measures section should recognize exceedance of the threshold.

   Response: the error in data entry within the Road Construction Emissions Model was corrected to the proper amount of acres per day that would be worked. The resulting value of 50.30 pounds/day PM10 is now shown within table 4. This new value does not exceed the standard.

4. Comment: For full disclosure, include the Road Construction Emissions Model inputs and outputs for the air quality analysis as an appendix to the DSEA/ISMND.

   Response: The Road Construction Emissions Model will be included as an appendix with the final EA/IS.

5. Comment: Regardless of the level of emissions, in order to be compliant with the mitigation measures adopted for the American River Common Features General Reevaluation Report (ARCF GRR), the Avoidance and Minimization Measures must require the project contractor to implement the Sac Metro Air District's Enhanced Exhaust Control Practices, not "consider" implementation of those practices (page 21).

   Response: The Corps has made the mentioned section more specific to meet the needed requirements for the air quality standards "If not already supplied with a factory-equipped diesel particulate filter, all construction contractors to use construction equipment outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the Contractor would achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. This will be done to meet the Corp's requirements that all off-road construction equipment comply with SMAQMD's enhanced exhaust controls (20% NOx and 45% PM reductions)."

6. Comment: Unless there is a requirement or incentive provided to implement the use of level 3 diesel emission control devices and tier 4 engines, it will not be an effective mitigation measure (page 22, bullet 5).

   Response: See number 5 response.

7. Comment: The greenhouse gas (GHG) emissions construction threshold is incorrectly noted as 1,000 metric tons (page 26). The Sac Metro Air District GHG construction threshold is 1,100 metric tons.

   Response: The error has been corrected.

8. Comment: Section 5.1.1 indicates full compliance with the Clean Air Act and General Conformity Rule (page 53). Although the emissions anticipated from this portion of the overall ARCF GRR are extremely low and do not pose a threat to Federal air quality attainment efforts, Sac Metro Air District recommends the Army Corps of Engineers complete its general conformity applicability analysis and conformity determination as soon as possible for the overall ARCF GRR project.

Response: The Corps is in the process of re-assessing the programmatic air emissions for the overall ARCF 2016 project as a part of updating the conformity analysis for the project. The 2019 construction season is in compliance with Federal and State Air Quality Standards, and thus is moving forward in parallel with the conformity determination and will be incorporated into the larger conformity analysis. The Corps estimates that the Conformity Analysis, with any proposed mitigation and offsets, will be released for public review in summer 2019 prior to the construction of the BSLMS.

D. Letter from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, dated April 18, 2019

1. Comment: The Central Valley Flood Protection Board, in cooperation with Sacramento District of the U.S. Army Corps of Engineers and the Sacramento Area Flood Control Agency, is considering approval of a plan to construct a mitigation site located south of the Freeport township along River Road / Highway 160, west of Highway 5 and north of Morrison Creek, to mitigate for the loss of riparian habitat as a result of the American River Watershed Common Features 2016 Project. This project will create approximately 24 acres of riparian habitat. The land being used to create this mitigation site is traditionally agricultural in use and once converted to a riparian habitat will be held in perpetuity as riparian habitat. The plants and woody vegetation will be made up of trees such as cottonwoods, shrubs/scrubs, and native grasses, creating a multi-tiered living space for wildlife and a wind barrier to reduce soil erosion of farmland in the area. When completed, this site will be self-sufficient and require no further maintenance once success criteria are met. Specifically, construction work will involve plowing and disking soil in preparation and shallow digging to plant containers. The attached map (Map 1) shows one known abandoned natural gas well located within the project area, but necessarily within the work area. Note that the Division has not verified the actual location of the well nor does it make specific statements regarding the adequacy of abandonment procedures with respect to current standards.

   Based on our review of available data, it is possible that the abandoned well could impact work on this site. Division records indicate that the abandoned well could be as shallow as four (4) feet below ground surface. It would be advisable to verify the location and depth to the top of the well prior to any work at the site. The local permitting agencies and property owner should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil and gas wells. These issues are non-exhaustively identified in the following comments and are provided by the Division for consideration by the local permitting agency, in conjunction with the property owner and/or developer, on a parcel-by-parcel or well-by-well basis. As stated above, the Division provides the above well review information solely to

facilitate decisions made by the local permitting agency regarding potential development near a gas well.

Response: Upon closer examination the well is outside the mitigation footprint. However, the location of the well will be included on the plans and we are currently investigating the location of any gas lines that would have been associated with the well to ensure avoidance. The project has specifications stating that the contractor must call USA prior to work.

E. Letter from the City of Sacramento Department of Public Works, Transportation Division, dated April 26, 2019

1. Comment: The proposed project is required to comply with Sacramento City Code Section 12.20.020 to prepare a traffic control plan for any construction activities that may obstruct vehicular or pedestrian traffic on city streets, including Consumnes River Blvd and Freeport Blvd. The plan is subject to review and approval of the City of Sacramento director of Department of Public Works, the City Code Section 12.20.030 outlines the minimum requirements for information that must be provided in the traffic control plan. Traffic control plan is subject to review and approval of the City of Sacramento director of Department of Public Works.

Response: As there will be little construction traffic associated with this work (it is similar in nature to the current agricultural work that is the current norm) and since the Project will not "obstruct vehicular or pedestrian traffic on city streets" a traffic control plan will not be submitted. Thank you for your review.

F. Letter from the Central Valley Regional Water Quality Control Board, dated April 17, 2019

1. Comment: The Central Valley Regional Water Quality Control Board has received and reviewed the subject document and has no comments to offer.

Response: Thank you for your review.

Appendix C
Road Construction Emissions Model

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Beach Stone Lake Mitigation Site

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	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
Grading/Excavation	0.60	2.54	7.88	50.30	0.30	50.00	10.67	0.27	10.40	0.01	797.38	0.24	0.01	805.77
Drainage/Utilities/Sub-Grade	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
Paving	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
Maximum (pounds/day)	0.60	2.54	7.88	50.30	0.30	50.00	10.67	0.27	10.40	0.01	797.38	0.24	0.01	805.77
Total (tons/construction project)	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	8.06

Notes:

Project Start Year ->	2019
Project Length (months) ->	2
Total Project Area (acres) ->	24
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	0	10
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Beach Stone Lake Mitigation Site

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	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
Grading/Excavation	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	7.31
Drainage/Utilities/Sub-Grade	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
Paving	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
Maximum (tons/phase)	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	7.31
Total (tons/construction project)	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	7.31

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 8.1.0

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Beach Stone Lake Mitigation Site	
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	2.00	months
Working Days per Month	20.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.33	miles
Total Project Area	24.20	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	0.00		
	Grading/Excavation	0.00		
	Drainage/Utilities/Sub-Grade	0.00		
	Paving	0.00		
Asphalt	Grubbing/Land Clearing	0.00		
	Grading/Excavation	0.00		
	Drainage/Utilities/Sub-Grade	0.00		
	Paving	0.00		

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.20		1/1/2019
Grading/Excavation	1.00	0.80		1/1/2019
Drainage/Utilities/Sub-Grade	0.00	0.70		2/1/2019
Paving	0.00	0.30		2/1/2019
Totals (Months)	1			

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	0.00			0	0.00
Miles/round trip: Grading/Excavation	0.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	0.00			0	0.00
Miles/round trip: Paving	0.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip			Calculated	Calculated
One-way trips/day			Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing			0	0.00
No. of employees: Grading/Excavation	7		0	0.00
No. of employees: Drainage/Utilities/Sub-Grade			0	0.00
No. of employees: Paving			0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT
Grubbing/Land Clearing - Exhaust					0.00
Grading/Excavation - Exhaust	1		10.00		10.00
Drainage/Utilities/Subgrade					0.00
Paving					0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.01	0.03	0.00	0.00	0.00	34.76	0.00	0.00	35.10
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.35
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.35

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5

Fugitive Dust	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing			0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation	5.00		50.00	0.50	10.40	0.10
Fugitive Dust - Drainage/Utilities/Subgrade			0.00	0.00	0.00	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Crawler Tractors	0.60	2.53	7.84	0.30	0.27	0.01	762.62	0.24	0.01	770.66
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation		pounds per day	0.60	2.53	7.84	0.30	0.27	0.01	762.66	0.24	0.01	770.66
	Grading/Excavation		tons per phase	0.01	0.03	0.08	0.00	0.00	0.00	7.63	0.00	0.00	7.71

Drainage/Utilities/Subgrade	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Drainage/Utilities/Sub-Grade	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving

Override of Default Number of Vehicles	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
	Program-estimate		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions all Phases (tons per construction period) =>		0.01	0.03	0.08	0.00	0.00	0.00	7.63	0.00	0.00	7.71

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

Supplemental Mitigated Negative Declaration
American River Watershed Common Features 2016 Project
Beach-Stone Lakes Mitigation Site

Project Background

The American River Watershed Common Features (ARCF) 2016 Project is a cooperative effort between U.S. Army Corps of Engineers (USACE), the Central Valley Flood Protection Board (Board), and the Sacramento Area Flood Control Agency (SAFCA). USACE is the NEPA lead agency and the Board is the CEQA lead agency for the ARCF 2016 Project.

Following the 1986 floods, and the associated severe impacts to Sacramento's levee system, Congress directed USACE to investigate means to reduce flood risk to the City of Sacramento. USACE completed an initial investigation in 1991 and a supplemental analysis in 1996. Recognizing that there were "common features" across the 1991 and 1996 candidate plans, Congress used the term American River Watershed Common Features in authorizing the project in the Water Resources Development Act (WRDA) of 1996. Following WRDA 1996 authorization, the ARCF Project was expanded and re-authorized in WRDA 1999 and again in WRDA 2016 (ARCF 2016 Project).

The ARCF General Reevaluation Report (ARCF GRR) Final Environmental Impact Statement / Environmental Impact Report (EIS/EIR) (State Clearinghouse Number 2005072046) evaluated the potential impacts of the entire ARCF Project and in 2016, the EIS/EIR, the Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Plan was certified by the Board.

Through the Bipartisan Budget Act of 2018, Congress granted USACE construction funding to complete urgent flood control projects. The ARCF 2016 Project was identified for urgent implementation, and Congress supplied full funding to implement all identified levee improvements.

The ARCF 2016 Project includes improving segments of the levee system along the Sacramento River East Levee that do not meet the current federal standards for flood protection. Construction of the levee improvements would require the removal of trees along the Sacramento River that contribute to the riparian corridor and provide important habitat to special status species and other wildlife. The 2015 U.S. Fish and Wildlife Service (USFWS) Biological Opinion (BO) and Fish and Wildlife Coordination Act Report (CAR) issued for the ARCF 2016 Project require and recommend compensating for the loss of riparian habitat caused by the ARCF 2016 Project. The Beach-Stone Lakes Mitigation Site (BSLMS) (Project) is the first site under development to meet the requirements and recommendations contained in the USFWS BO and CAR.

Project Description

USACE, Board, and SAFCA propose to construct the BSLMS Project to provide a portion of the mitigation needed to mitigate for the removal of riparian habitat by construction of the ARCF 2016 Project that could not be avoided, minimized, or mitigated for onsite. The Project area is currently farmland owned by the Sacramento Area Sewer District. The site was chosen based on its close proximity to the Sacramento River East Levee project sites.

Construction of the Project would include planting approximately 24 acres of riparian habitat. Prior to planting, the site would be prepared by mowing, ripping, and disking. A new well system would be installed and a temporary drip irrigation system would be connected to the well. The plantings would be irrigated for two years. Construction is expected to begin in late summer 2019 and take approximately five months to complete.

Performance criteria for plant survival have been established and the site would be monitored for five years to measure the success of the plantings. Mitigation plantings would be assessed at a ratio of 2:1 compensation for the acreage of riparian habitat lost. Upon Project completion and assuming a mitigation ratio of 2:1, the BSLMS should provide compensatory mitigation for approximately 12 acres of riparian habitat that may be removed during the construction of the ARCF 2016 Project.

Although many of the environmental impacts were addressed in the 2016 ARCF GRR EIS/EIR, mitigation sites had not yet been identified. The attached Supplemental Environmental Assessment / Initial Study (SEA/IS) for the proposed Project, in combination with the 2016 ARCF GRR EIS/EIR, fully disclose the potential environmental effects of the proposed Project. This Mitigated Negative Declaration (MND) is supported by the SEA/IS.

Project Location

The BSLMS would be located south of Freeport, California, west of Interstate 5, north of Morrison Creek, along Highway 160/River Road, in Sacramento County.

Avoidance and Minimization Measures

The following avoidance and minimization measures are detailed in the SEA/IS. These measures, in addition to those identified in the 2016 ARCF GRR EIS/EIR, would further reduce the environmental impacts of the proposed Project.

Air Quality

Although the proposed Project would not exceed established significance criteria for air quality impacts, the following measures to reduce project-associated emissions would be implemented:

- Implement Sacramento Metropolitan Air Quality Management District's (SMAQMD) Enhanced Construction Emission Control Practices.
- At no point in time would the Contractor's equipment be operated during rain events or on saturated work areas and they would coordinate with SAFCA after such an event to determine when work may begin again.
- Water exposed soil and haul roads with adequate frequency to minimize fugitive dust. Watering should not be done to a level that would lead to sediment flow off-site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Treat site accesses to a distance of 100 feet from a paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person should respond and take corrective action

within 48 hours. The phone number of SMAQMD should also be visible to ensure compliance.

- If not already supplied with a factory-equipped diesel particulate filter, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the Contractor would achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. This will be done to meet USACE requirements that all off-road construction equipment comply with SMAQMD's enhanced exhaust controls (20% NOx and 45% PM reductions).
- On occasions when wind speeds reach or exceed 20 miles per hour (MPH) for 15-minutes, all excavation, grading, and demolition activities would be suspended unless the first bullet point is met.
- When materials are removed from or added to an external storage pile, the pile would be stabilized with water or covered with tarps.
- If materials are distributed off-site, the contractors shall maintain a minimum of six inches of freeboard space between the top of the container and the top of the materials. The contractor would cover earthen and aggregate materials whenever they are transported on freeways or major roadways.
- The speed limit for unpaved roads would be 15 MPH unless the contractor is able to provide dust control to SMAQMD standards, with SMAQMD acting as the authority on what the new speed limit would be.
- Wheel washers and/or "rumble strips" would be installed for all exiting trucks and equipment or trucks and equipment would be cleaned to remove accumulated dirt prior to leaving the site.
- The accumulation of mud and dirt would be removed at least once a day from public roads when operations are occurring. This would be performed using a commercial/municipal style wet power vacuum street sweeper. The use of rotary brushes (power brooms) on standard construction equipment is not allowed. "Washing" of streets onto highway shoulders or into the storm drain system is not allowed.

Climate Change

While GHG emissions associated with the proposed Project would not violate significance thresholds established in the SEA/IS, the following measures to reduce project-associated GHG emissions would be implemented:

- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site.
- Shut down equipment if not in operation after 5 minutes in accordance with California Code of Regulations, Title 13, sections 2449(d)(3) and 2485.

- All construction equipment would be maintained in proper working condition according to the specifications of the manufacturer. All construction equipment would pass inspection by a certified mechanic to show it is in proper working condition before it is operated on the project site.

Cultural Resources

Consultation with the State Historic Preservation Office (SHPO) regarding the inventory, determination of eligibility and findings of effects for the proposed Project is ongoing and would be completed before a decision is reached on the findings of the SEA/IS. In addition to consultation, the following avoidance and minimization measures to ensure no significant impacts to cultural resources would be implemented:

- To minimize any effects to Historic Properties that may be encountered during construction activities, the construction Contractor would follow the procedures for the discovery of previously unknown Historic Properties described in Stipulation IX of the existing Programmatic Agreement for the ARCF 2016 Project.

Land Use

Although the proposed Project would not exceed established significance criteria for land use, the following measure to further minimize impacts would be implemented:

- The Project includes the installation of a new water well and pump that would remain for future agricultural use. The new well and improved irrigation systems would allow the farmland to produce higher yields on a smaller amount of land with crops that produce a greater financial return than those from dry land farming.

Noise

Although the proposed Project would not exceed established significance criteria for noise impacts, the following measures to further minimize noise levels during construction would be implemented:

- Notices with information including, but not limited to, contractor contact telephone number(s) and proposed construction dates and times would be displayed in a conspicuous manner, such as on construction site fences;

- Construction equipment would be equipped with factory-installed muffling devices, and all equipment would be operated and maintained in good working order to minimize noise generation.

Special Status Species

Although the proposed Project would not exceed significance criteria for effects to special status species, the following avoidance and minimization measure would be implemented:

- Surveys would be conducted within one-quarter mile of the proposed construction site in spring 2019, and nesting surveys would be conducted prior to the commencement of construction. If the surveys determine that nesting birds are present, USACE would coordinate with CDFW and USFWS to determine any necessary avoidance and minimization measures that would need to be implemented.

- The following protocol from the CDFW for Swainson's hawk would be followed for the pre-construction survey for raptors: A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 mile of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 mile of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Wildlife. If work is begun and completed between September 1 and January 31, a survey is not required.

Traffic

Although the proposed Project would not exceed established significance criteria for traffic impacts, the following measures to reduce project-associated impacts to traffic would be implemented:

- The construction contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on nearby roads.
- Emergency vehicle access would be maintained at all times. Coordination with local emergency responders by the contractor to inform them of the construction activities would be required by the contractor.
- The construction contractor would assess any damage to roadways caused by construction and would repair all potholes, fractures, or other damages.
- The construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within on-site designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area in a location that would not cause traffic congestion and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.

Vegetation and Wildlife

The following recommendations from the U.S. Fish and Wildlife Service Coordination Act Report for the ARCF 2016 Project would be implemented to minimize effects to vegetation and wildlife to less than significant:

- Woody vegetation that needs to be removed within the construction footprint should be removed during the non-nesting season (September 1 to February 15) to avoid affecting active bird nests. If tree trimming is conducted during the nesting season (February 16 to August 31), a qualified biologist would conduct a nesting bird survey.
- Avoid impacts to migratory birds nesting in and adjacent to the Project site by conducting pre-construction surveys for active nests along haul roads, staging areas, and construction sites. Pre-construction surveys would be conducted by a qualified biologist. If an active nest is located, an appropriate buffer to minimize impacts shall be determined by the qualified

biologist. No work shall occur within the buffer until the young have fledged, or as otherwise determined by a qualified biologist.

- Avoid future impacts to the site by ensuring all vehicles, equipment, and vegetative materials are free of contaminants, such as invasive weed species or toxic materials.
- Minimize project impacts by reseeding all disturbed areas, including staging areas, at the completion of construction with native forbs and grasses. Reseeding should be conducted just prior to the rainy season to enhance germination and plant establishment. The reseeding mix should include species used by and beneficial for native pollinators.
- Minimize the impact of removal and trimming of trees and shrubs greater than 2-inches in diameter by having these activities supervised and/or completed by a certified arborist.
- Need for mitigation plantings would be assessed at a ratio of 2:1 compensation for the acreage of riparian habitat lost to ARCF 16 levee improvement construction. Approximately 24 acres of riparian habitat would be created under the proposed action, offsetting approximately 12 acres of loss to the riparian corridor along the Sacramento River.
- If a tree is damaged to the point it must be removed, the replacement tree would be the same species. If the damaged tree is non-native, then it would be replaced with a native tree species, which would enhance the quality of the environment,
- All trees and shrubs currently located within the construction footprint would be protected in place with temporary fencing placed one and a half times the drip line of each tree or scrub.
- Grasses removed due to construction activities would be restored through reseeding. If any non-woody plants not planned for removal are damaged, they would be replaced in-kind. Areas would be reseeded with native vegetation, such as creeping wild rye (*Elymus triticoides*). Reseeded areas would be periodically monitored by the Contractor until 85 percent vegetation cover is achieved, or until May 1st of the year following the reseeding. If reseeded areas do not reach the required amount of cover by May 1st, additional reseeding may be required.

Water Quality

Although the proposed Project would not exceed established significance criteria for water quality impacts, the following measures to further reduce project-related impacts to water quality would be implemented:

- Prior to construction, the construction Contractor would prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and would obtain a National Pollutant Discharge Elimination Systems permit, as applicable, and comply with all conditions of the permit; and
- This plan would detail the construction activities to take place, Best Management Practices (BMPs) to be implemented to prevent any discharges of contaminated storm water into waterways, and inspection and monitoring activities that would be conducted.

Findings

Based on the information in the 2016 ARCF GRR EIS/EIR, the SEA/IS, and the administrative record for the ARCF 2016 Project, the Board finds that the proposed Project, with the avoidance

and minimization measures listed above and including those from the 2016 ARCF GRR EIS/EIR, would not result in a significant impact on the environment.

This MND reflects the Board's independent judgment and analysis.

The environmental document and other materials, which constitute the record, are located at 3310 El Camino Avenue, Room 170, Sacramento, California 95821. In accordance with California Code of Regulations, Title 14, Section 15075, Board staff will file a Notice of Determination (NOD) with the State Clearinghouse within five days of adopting this MND.

I hereby approve this project:

_____ _____

Leslie M. Gallagher Date
Executive Officer
Central Valley Flood Protection Board

Appendix A
Federal and State-listed Species Lists

Federally Listed Fish and Wildlife Species That May Occur at BSLMS.

Species	Status	Habitat	Potential to Occur on Site
Crustaceans			
Vernal Pool Fairy Shrimp *Branchinecta iynchi*	Threatened	Inhabits vernal pools and swales	No Potential to occur. No suitable habitat is present in the action area.
Vernal Pool Fairy Shrimp *Lepidurus packardi*	Endangered	Inhabits vernal pools and swales	No Potential to occur. No suitable habitat is present in the action area.
Fish			
Delta Smelt *Hypomesus transpacificus*	Endangered	Spawns in tidally influenced freshwater wetlands and seasonally submerged uplands; rears seasonally in inundated floodplains, tidal marsh, and the Delta. Critical habitat is listed for this site.	No potential to occur. No suitable habitat present in the project area. Work is being performed on the landside of the nearby levee and is agriculture land.
Central Valley Spring-run Chinook Salmon *Oncorhynchus tshawytscha*	Endangered	Spending the majority of its life in the colder water of the northern Pacific this species returns to the Sacramento River to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Central Valley Winter-run Chinook Salmon *Oncorhynchus tshawytscha*	Endangered	Spending the majority of its life in the colder water of the northern Pacific this species returns to the Sacramento River to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Central Valley Steelhead *Oncorhynchus mykiss*	Endangered	Spawning in the gravel bottomed fresh water rivers this population migrates to the ocean where they grow larger than their freshwater counterparts. They would return to the rivers they spawned in to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Green sturgeon *Acipenser medirostris*	Endangered	Spawning in the gravel bottomed fresh water rivers this population migrates to the ocean where they grow larger than their freshwater counterparts. They would return to the rivers they spawned in to reproduce.	No in-water work. No potential to occur due to barriers between river and project site.
Amphibians			
California Red-legged Frog *Rana draytonii*	Threatened	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent riparian vegetation and typically without predatory fish. Requires adequate hibernacula, such as small-mammal burrows and moist leaf litter.	No potential to occur. Work is being performed in non-wetlands and is traditionally agriculture land.

Species	Status	Habitat	Potential to Occur on Site
California Tiger Salamander *Ambystoma californiense*	Endangered	Prefers grasslands and low foothills, ponds and creeks with emergent riparian vegetation and typically without predatory fish. Requires adequate hibernacula, such as small-mammal burrows and moist leaf litter.	No potential to occur. Work is being performed in non-wetlands and is traditionally agriculture land.
Reptiles			
Giant Garter Snake *Thamnophis gigas*	Threatened	Streams, sloughs, ponds and irrigation/drainage ditches; also requires upland refugia not subject to flooding during the snake's inactive season.	No potential to occur. Work is in an arid agriculture area.
Insects			
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	Threatened	Inhabits elderberry shrubs, primary in riparian woodland and scrub habitat.	No elderberry shrubs are present in the project area. If found on site, host bushes would be protected in place.

State-listed Species with the Potential to Occur at BSLMS.

Species Name	State Status	Habitat	Potential to Occur on Site
Cooper's hawk *Accipiter cooperii*	Watch List (WL)	Nests in woodlands and riparian woodlands.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Tricolored blackbird *Agelaius tricolor*	State Candidate Endangered (CE), Species of Special Concern (SSC)	Highly colonial species, nests primarily in Central Valley in or near freshwater marsh, swamp, and wetlands.	Potential to nest/forage in vicinity. No tree/shrub removal. Majority of construction occurring outside breeding season.
Burrowing owl *Athene cunicularia*	SSC	Nests underground in open habitats with low-growing vegetation.	The project site is an actively worked agricultural field that does not provide undisturbed nesting habitat for burrowing owl. Owls have not been observed during site visits.
Ferruginous hawk *Buteo regalis*	WL	Nests and forages in open grasslands, scrub, and woodlands.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.

Swainson's hawk *Buteo swainsoni*	State Threatened (T)	Breeds in grasslands with scattered trees, riparian areas, and agricultural lands with adjacent open foraging areas that support rodent populations.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
White-tailed kite *Elanus leucurus*	Fully Protected (FP)	Open grasslands, meadows, or marshes for foraging close to woodlands for nesting.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Western pond turtle *Emys marmorata*	SSC	Ponds, marshes, and rivers with basking sites and adjacent sandy banks or open, grassy areas within 0.5km for nesting.	No in-water work. Turtles may be present in Morrison Creek, just south of the project area. However, no work will occur in or directly adjacent to Morrison Creek, and the project site is an actively worked agricultural field that does not provide nesting habitat for pond turtle.
Merlin *Falco columbarius*	WL	Nests in trees in open woodlands, grasslands, tidal estuaries, and open country.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Song sparrow ("Modesto" population) *Melospiza melodia*	SSC	Locally abundant in areas of the Central Valley with extensive wetlands and riparian corridors.	Potential to nest/forage in vicinity. No tree/shrub removal. Majority of construction occurring outside breeding season.
Double-crested cormorant *Phalacrocorax auritus*	WL	Colonial nester on coastal cliffs, offshore islands, and in riparian woodlands along lake margins in the interior of the state.	Potential to nest/forage in vicinity. No tree removal. Majority of construction occurring outside breeding season.
Sacramento splittail *Pogonichthys macrolepidotus*	SSC	Found in the Delta, Suisun Bay, and associated marshes.	No in-water work.
Longfin smelt *Spirinchus thaleichthys*	T, SSC	Found in open waters of estuaries.	No in-water work.

American badger *Taxidea taxus*	SSC	Most abundant in drier, open stages of shrub, forest, and grassland habitat with friable soils for digging burrows.	Badger may be a transient species through the project area. However, the site is an actively worked agricultural field and no badger burrows have been observed. No impact.
Giant garter snake *Thamnophis gigas*	T	Highly aquatic. Found in freshwater marsh and low gradient streams, drainage canals, and irrigation ditches.	Garter snakes may be present in Morrison Creek, south of the project area. However, no work will occur in or directly adjacent to Morrison Creek. No suitable habitat within project limits.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds.	Potential to nest/forage in vicinity. No tree/shrub removal. Majority of construction occurring outside breeding season.

California Natural Diversity Database report March 4th, 2019.

Appendix B
Responses to Comments
Beach Stone Lakes Mitigation Site
Draft Environmental Assessment/Initial Study
Sacramento County, California

A. Letter from the U.S. Department of Homeland Security, FEMA Region IX, dated April 8, 2019

1. Comment: If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any development must not increase base flood elevation levels. The term development means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed prior to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

   Response: While the mitigation area is in a FEMA designated floodway, the area is in a backwater area of the floodplain and not used for water conveyance. In essence, the water in this area has a velocity of zero so additional vegetation has no effect on flood stages from a loss of a conveyance perspective. Typical floodway encroachments that FEMA would require a more stringent review is when fill or obstruction are placed in an area of flowing water causing the water to be either slowed which raises water surface elevations or sped up to pass the same amount of water through a smaller cross section. Since this is a backwater area, neither condition applies nor is an increase in water surface expected as a result of "loss of cross section" for conveyance. While there is the possibility of a higher water surface elevation as a result of lost storage in the floodplain it is negligible. The Beach Stone Lake area itself is part of a huge floodplain (over 19,000 acres in size during the 100-year event) and the Beach Stone Lakes Mitigations Site itself is less than 25 acres (less than 0.001% of the floodplain). By comparison the loss of storage due to vegetation is negligible.

B. Letter from the Delta Stewardship Council, dated April 26, 2019

1. Comment: Based on the project location and scope, as provided in the Draft SEA/IS/MND, and the covered action early consultation meeting held on February 2, 2019, with Council staff and staff from the California Department of Water Resources (DWR) and the Sacramento Area Flood Control Association (SAFCA), the proposed project appears to meet the definition of a covered action set forth in Water Code section 85057.5(a) because it:

i. Would occur in whole or in part within the boundaries of the Legal Delta (Water Code section12220) or Suisun Marsh (Public Resources Code section 29101). (Cal. Water Code section 85057.5(a)(1).) This project would occur in part within the boundaries of the Legal Delta.
ii. Would be carried out, approved, or funded by the State or a local public agency. (Cal. Water Code section 85057.5(a)(2).) This project would be carried out by the Board, DWR, and SAFCA, which are public agencies.
iii. Would have a significant impact on the achievement of one or both of the coequal goals or the implementation of a government-sponsored flood control program to reduce risks to people, property, and State interests in the Delta. It appears that this project would have an impact on the coequal goal of ecosystem restoration, as well as flood control and risk to people, property, and State interests because it has elements of both restoration and flood control.
iv. Would be covered by one or more of the regulatory policies contained in the Delta Plan (23 CCR section 5003-5015). Delta Plan regulatory policies that may apply to the proposed project are discussed below.

The Delta Reform Act requires the State or local agency that proposes to undertake a covered action to file a certification of consistency with the Delta Plan prior to initiation of implementation of the project. (Cal. Water Code section 85225.)

Response: The Board agrees that the BSLMS Project meets conditions 1 and 2 of the definition of a covered action.

The Board does not agree that the BSLMS Project meets conditions 3 or 4 of the definition of a covered action because the coequal goals and the regulatory policies pertain to ecosystem restoration, not mitigation actions. As was discussed during the early consultation meeting that took place on February 1, 2019, and during the follow-up meeting on May 8, 2019, the term restoration is not equatable to mitigation. The term "restoration" is defined in Water Code section 85066 as "the application of ecological principles to restore a degraded or fragmented ecosystem and return it to a condition in which its biological and structural components achieve a close approximation of its natural potential, taking into consideration the physical changes that have occurred in the past and the future impact of climate change and sea level rise."

The BSLMS Project is compensatory mitigation for the removal of riparian habitat, as required by the 2015 U.S. Fish and Wildlife Service Biological Opinion and 2015 Fish and Wildlife Coordination Act Report issued for the overall ARCF 2016 Project. While the BSLMS Project will plant riparian vegetation, the project is compensatory mitigation required by law. The site was chosen based on its proximity to the impact sites, availability, and potential to meet success criteria. Even though the mitigation site will provide habitat value, language in the Water Code

explicitly refers to restoration projects as a covered action and does not mention mitigation projects or actions. As such, the Project will not have a significant impact on the achievement of the coequal goal of ecosystem restoration.

While the BSLMS Project will be used to mitigate for a government-sponsored flood control project in the Delta, the project itself is not a flood control project. A Certification of Consistency will be filed as needed for future planned ARCF 2016 levee improvement projects that occur within the Delta and meet the conditions of a covered action.

2. Comment: The following section describes regulatory Delta Plan policies that may apply to the proposed project based on the available information in the Draft SEA/IS/MND. [The comment letter lists GP1 subsection (b)(2) and subsection (b)(3); ER P2; ER P5; and DP P2].

   Response: Per the Delta Stewardship Council's Covered Action Checklist, if a project does not meet the definition of a covered action, no further steps are required, and the applicant does not proceed to determining if the project is covered by a Delta Plan regulatory policy. Additionally, there are no policies that apply to mitigation projects. As discussed above, mitigation actions are not comparable to restoration projects.

3. Comment: Delta Plan Policy DP P2 (23 CCR section 5011) reflects one of the Delta Plan's charges to protect the Delta as an evolving place by requiring the siting of water management facilities, ecosystem restoration, and flood management infrastructure to avoid or reduce conflicts with existing uses or planned future uses when feasible. DP P2 applies if mitigation habitat for flood management infrastructure *is required* within the Delta, as is the case with the proposed project. (emphasis added)

   Response: As cited in the Delta Plan and in 23 CCR section 5011, DP P2 does not refer to "mitigation habitat for flood management infrastructure." This policy refers to the siting of water management facilities, ecosystem restoration, and flood management infrastructure, but does not mention mitigation nor link mitigation habitat and flood management infrastructure together. Furthermore, this mitigation project is not required to be implemented within the Delta, per the 2015 U.S. Fish and Wildlife Service Biological Opinion or the 2015 Fish and Wildlife Coordination Act Report. The siting of the mitigation project is based on its proximity to anticipated future project impacts and the availability of the land. Therefore, DP P2 does not apply to the Project.

4. Comment: In addition to the specific comments above, the SEA/IS/MND Regulatory Setting should include a discussion of the Delta Plan and the specific

applicable regulatory policy or policies for each resource section to which a Delta Plan policy is applicable.

Response: As discussed above, the Board does not agree that any regulatory policies under the Delta Plan are applicable to the Project.

5. Comment: As the Board proceeds with design, development, and environmental impact analysis of the project, the Council encourages the Board, DWR, and SAFCA to continue to engage Council staff in early consultation (prior to submittal of a certification of consistency) to discuss project features and avoidance and minimization measures that would promote consistency with the Delta Plan. As part of the Council, Delta Science Program staff are also available to provide further consultation and guidance regarding appropriate application of best available science.

   Response: The Board appreciates the Council's consultation and guidance and will engage Council staff as design and environmental analysis proceeds for other components of the ARCF 2016 Project that are within the legal Delta and meet the definition of a covered action.

C. Letter from the Sacramento Metropolitan Air Quality Management District, dated April 8, 2019

1. Comment: Table 2 incorrectly lists the State Status for the SVAB as attainment of the 24-hour and annual PM10 standards (page 19).

   Response: The error has been changed to correctly state as "non-attainment.

2. Comment: The narrative referencing Tables 3 and 4 are incorrect (pages 20-21).

   Response: The error has been changed to correctly state the correct table numbers.

3. Comment: Table 4 demonstrates that PM10 emissions exceed the Sac Metro Air District daily threshold of 80 pounds/day (page 21). The narrative in the Avoidance and Minimization Measures section should recognize exceedance of the threshold.

   Response: the error in data entry within the Road Construction Emissions Model was corrected to the proper amount of acres per day that would be worked. The resulting value of 50.30 pounds/day PM10 is now shown within table 4. This new value does not exceed the standard.

4. Comment: For full disclosure, include the Road Construction Emissions Model inputs and outputs for the air quality analysis as an appendix to the DSEA/ISMND.

   Response: The Road Construction Emissions Model will be included as an appendix with the final EA/IS.

5. Comment: Regardless of the level of emissions, in order to be compliant with the mitigation measures adopted for the American River Common Features General Reevaluation Report (ARCF GRR), the Avoidance and Minimization Measures must require the project contractor to implement the Sac Metro Air District's Enhanced Exhaust Control Practices, not "consider" implementation of those practices (page 21).

   Response: The Corps has made the mentioned section more specific to meet the needed requirements for the air quality standards "If not already supplied with a factory-equipped diesel particulate filter, all construction contractors to use construction equipment outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the Contractor would achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. This will be done to meet the Corp's requirements that all off-road construction equipment comply with SMAQMD's enhanced exhaust controls (20% NOx and 45% PM reductions)."

6. Comment: Unless there is a requirement or incentive provided to implement the use of level 3 diesel emission control devices and tier 4 engines, it will not be an effective mitigation measure (page 22, bullet 5).

   Response: See number 5 response.

7. Comment: The greenhouse gas (GHG) emissions construction threshold is incorrectly noted as 1,000 metric tons (page 26). The Sac Metro Air District GHG construction threshold is 1,100 metric tons.

   Response: The error has been corrected.

8. Comment: Section 5.1.1 indicates full compliance with the Clean Air Act and General Conformity Rule (page 53). Although the emissions anticipated from this portion of the overall ARCF GRR are extremely low and do not pose a threat to Federal air quality attainment efforts, Sac Metro Air District recommends the Army Corps of Engineers complete its general conformity applicability analysis and conformity determination as soon as possible for the overall ARCF GRR project.

Response: The Corps is in the process of re-assessing the programmatic air emissions for the overall ARCF 2016 project as a part of updating the conformity analysis for the project. The 2019 construction season is in compliance with Federal and State Air Quality Standards, and thus is moving forward in parallel with the conformity determination and will be incorporated into the larger conformity analysis. The Corps estimates that the Conformity Analysis, with any proposed mitigation and offsets, will be released for public review in summer 2019 prior to the construction of the BSLMS.

D. Letter from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, dated April 18, 2019

1. Comment: The Central Valley Flood Protection Board, in cooperation with Sacramento District of the U.S. Army Corps of Engineers and the Sacramento Area Flood Control Agency, is considering approval of a plan to construct a mitigation site located south of the Freeport township along River Road / Highway 160, west of Highway 5 and north of Morrison Creek, to mitigate for the loss of riparian habitat as a result of the American River Watershed Common Features 2016 Project. This project will create approximately 24 acres of riparian habitat. The land being used to create this mitigation site is traditionally agricultural in use and once converted to a riparian habitat will be held in perpetuity as riparian habitat. The plants and woody vegetation will be made up of trees such as cottonwoods, shrubs/scrubs, and native grasses, creating a multi-tiered living space for wildlife and a wind barrier to reduce soil erosion of farmland in the area. When completed, this site will be self-sufficient and require no further maintenance once success criteria are met. Specifically, construction work will involve plowing and disking soil in preparation and shallow digging to plant containers. The attached map (Map 1) shows one known abandoned natural gas well located within the project area, but necessarily within the work area. Note that the Division has not verified the actual location of the well nor does it make specific statements regarding the adequacy of abandonment procedures with respect to current standards.

   Based on our review of available data, it is possible that the abandoned well could impact work on this site. Division records indicate that the abandoned well could be as shallow as four (4) feet below ground surface. It would be advisable to verify the location and depth to the top of the well prior to any work at the site. The local permitting agencies and property owner should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil and gas wells. These issues are non-exhaustively identified in the following comments and are provided by the Division for consideration by the local permitting agency, in conjunction with the property owner and/or developer, on a parcel-by-parcel or well-by-well basis. As stated above, the Division provides the above well review information solely to

facilitate decisions made by the local permitting agency regarding potential development near a gas well.

Response: Upon closer examination the well is outside the mitigation footprint. However, the location of the well will be included on the plans and we are currently investigating the location of any gas lines that would have been associated with the well to ensure avoidance. The project has specifications stating that the contractor must call USA prior to work.

E. Letter from the City of Sacramento Department of Public Works, Transportation Division, dated April 26, 2019

1. Comment: The proposed project is required to comply with Sacramento City Code Section 12.20.020 to prepare a traffic control plan for any construction activities that may obstruct vehicular or pedestrian traffic on city streets, including Consumnes River Blvd and Freeport Blvd. The plan is subject to review and approval of the City of Sacramento director of Department of Public Works, the City Code Section 12.20.030 outlines the minimum requirements for information that must be provided in the traffic control plan. Traffic control plan is subject to review and approval of the City of Sacramento director of Department of Public Works.

Response: As there will be little construction traffic associated with this work (it is similar in nature to the current agricultural work that is the current norm) and since the Project will not "obstruct vehicular or pedestrian traffic on city streets" a traffic control plan will not be submitted. Thank you for your review.

F. Letter from the Central Valley Regional Water Quality Control Board, dated April 17, 2019

1. Comment: The Central Valley Regional Water Quality Control Board has received and reviewed the subject document and has no comments to offer.

Response: Thank you for your review.

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Beach Stone Lake Mitigation Site

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	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
Grading/Excavation	0.60	2.54	7.88	50.30	0.30	50.00	10.67	0.27	10.40	0.01	797.38	0.24	0.01	805.77
Drainage/Utilities/Sub-Grade	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
Paving	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
Maximum (pounds/day)	0.60	2.54	7.88	50.30	0.30	50.00	10.67	0.27	10.40	0.01	797.38	0.24	0.01	805.77
Total (tons/construction project)	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	8.06

Notes:

Project Start Year ->	2019
Project Length (months) ->	2
Total Project Area (acres) ->	24
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	0	10
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Beach Stone Lake Mitigation Site

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	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
Grading/Excavation	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	7.31
Drainage/Utilities/Sub-Grade	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
Paving	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
Maximum (tons/phase)	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	7.31
Total (tons/construction project)	0.01	0.03	0.08	0.50	0.00	0.50	0.11	0.00	0.10	0.00	7.97	0.00	0.00	7.31

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 8.1.0

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Beach Stone Lake Mitigation Site	
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	2.00	months
Working Days per Month	20.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.33	miles
Total Project Area	24.20	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	0.00		
	Grading/Excavation	0.00		
	Drainage/Utilities/Sub-Grade	0.00		
	Paving	0.00		
Asphalt	Grubbing/Land Clearing	0.00		
	Grading/Excavation	0.00		
	Drainage/Utilities/Sub-Grade	0.00		
	Paving	0.00		

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.20		1/1/2019
Grading/Excavation	1.00	0.80		1/1/2019
Drainage/Utilities/Sub-Grade	0.00	0.70		2/1/2019
Paving	0.00	0.30		2/1/2019
Totals (Months)	1			

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	0.00			0	0.00
Miles/round trip: Grading/Excavation	0.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	0.00			0	0.00
Miles/round trip: Paving	0.00			0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip			Calculated	Calculated
One-way trips/day			Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing			0	0.00
No. of employees: Grading/Excavation	7		0	0.00
No. of employees: Drainage/Utilities/Sub-Grade			0	0.00
No. of employees: Paving			0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT
Grubbing/Land Clearing - Exhaust					0.00
Grading/Excavation - Exhaust	1		10.00		10.00
Drainage/Utilities/Subgrade					0.00
Paving					0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.01	0.03	0.00	0.00	0.00	34.76	0.00	0.00	35.10
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.35
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.35

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5

Fugitive Dust	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing			0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation	5.00		50.00	0.50	10.40	0.10
Fugitive Dust - Drainage/Utilities/Subgrade			0.00	0.00	0.00	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Crawler Tractors	0.60	2.53	7.84	0.30	0.27	0.01	762.62	0.24	0.01	770.66
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation		pounds per day	0.60	2.53	7.84	0.30	0.27	0.01	762.66	0.24	0.01	770.66
	Grading/Excavation		tons per phase	0.01	0.03	0.08	0.00	0.00	0.00	7.63	0.00	0.00	7.71

Drainage/Utilities/Subgrade	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Drainage/Utilities/Sub-Grade	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving

Override of Default Number of Vehicles	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
	Program-estimate		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions all Phases (tons per construction period) =>		0.01	0.03	0.08	0.00	0.00	0.00	7.63	0.00	0.00	7.71

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET