FOLSOM DAM RAISE MODIFICATIONS PROJECT

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT

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DEPARTMENT OF WATER RESOURCES · STATE OF CALIFORNIA ·

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

BUREAU OF RECLAMATION

SAFCA
Sacramento Area Flood Control Agency

FOLSOM DAM RAISE MODIFICATIONS PROJECT:
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Type of Statement: Draft Supplemental Environmental Impact Statement/Environmental Impact Report (DSEIS/EIR)

Lead NEPA Agency: U.S. Army Corps of Engineers, Sacramento District (USACE)

Lead CEQA Agency: State of California, Central Valley Flood Protection Board (CVFPB)

Cooperating Agencies: Sacramento Area Flood Control Agency (SAFCA); CVFPB; U.S. Bureau of Reclamation (Reclamation)

Summary: The USACE and its non-Federal sponsors, the CVFPB and SAFCA, propose to provide enhanced flood risk protection to the Sacramento Metropolitan Area by constructing the Folsom Dam Raise Modifications project. The project is located in Sacramento, Placer, and El Dorado Counties in California. Alternative 2 is the preferred alternative with multiple actions. This alternative would involve: (1) constructing a new Dike 3; (2) modified concrete floodwall elements; (3) onsite borrow and disposal at the Mormon Island Auxiliary Dam (MIAD) West; (4) rock crushing operations at MIAD East; and (5) a project mitigation plan. This DSEIS/EIR is a supplement to the 2017 Final SEIS/EIR for the Folsom Dam Raise Project (USACE, 2017) prepared by USACE, which was a supplement to the 2007 Final EIS/EIR for the Folsom Dam Safety and Flood Damage Reduction Project (Reclamation, 2007) prepared by the Bureau of Reclamation. Alternative 2 includes changes to the designs analyzed in the 2017 SEIS/EIR and new elements of the project that have been considered since 2017. This DSEIS/EIR was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and provides an evaluation of the potential effects on environmental resources that could occur if the proposed project (Alternative 2) is constructed, and those that could occur if the project is not constructed (Alternative 1, No Action). It also identifies measures to avoid, minimize, or compensate any potentially significant adverse impacts, where feasible.

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Transmittal: This DSEIS/EIR on the Folsom Dam Raise Modifications project is being made available to the public on or about October 29, 2021, as required by the National Environmental Policy Act of 1969, as amended.

EXECUTIVE SUMMARY

ES.1 PURPOSE OF THE DSEIS/EIR

This Draft Supplemental Environmental Impact Statement/Environmental Impact Report (DSEIS/EIR) for the Folsom Dam Raise Modifications project has been prepared by the U.S. Army Corps of Engineers (USACE), Sacramento District, as the Federal Lead Agency under the National Environmental Policy Act (NEPA) and the State of California's Central Valley Flood Protection Board (CVFPB) as the State Lead Agency under the California Environmental Quality Act (CEQA), for the Folsom Dam Raise Modifications Project. The Folsom Dam Raise Modifications proposed action is a cooperative effort between the USACE, the U.S. Bureau of Reclamation (Reclamation), the Sacramento Area Flood Control Agency (SAFCA), and the CVFPB, through the California Department of Water Resources (DWR).

The Folsom Dam Raise project was authorized under section 101(a)(6) of the Water Resources Development Act of 1999 (Public Law 106-53), Section 128 of the Energy and Water Development Appropriations Act of 2004 (Public Law 108-137), and Section 3029(b) of the Water Resources Development Act of 2007 (Public Law 110-114). The Folsom Dam Raise project was reevaluated jointly with the Folsom Dam Modification Project in the American River Watershed Project Post Authorization Change Report (PACR) for the American River Watershed Project dated March 2007. The PACR resulted in the recommendation of an auxiliary spillway at the Folsom Dam – which was constructed jointly with Reclamation – known as the Folsom Joint Federal Project (JFP). In addition to the JFP, the PACR resulted in the authorization of the Folsom Dam Raise project to include a 3.5-foot combination earthen raise and concrete floodwalls of the reservoir dikes and Mormon Island Auxiliary Dam (MIAD), a 3.5-foot raise of the Left Wing Dam (LWD) and Right Wing Dam (RWD) via installation of concrete floodwalls, and refinements to existing emergency and service spillway Tainter gates and related structural modifications at the Main Dam (Folsom Dam) rather than the previously authorized 7-foot raise. The authorized Folsom Dam Raise project also includes three ecosystem restoration components, one being modifications to the temperature control shutters (TCS) on the Main Dam. The ecosystem restoration components of the project are not evaluated in this DSEIS/EIR because the current designs do not warrant further NEPA and CEQA consideration at this time.

After the authorization of emergency spillway gate work in the 2007 PACR, Reclamation completed structural improvements to the existing service and emergency Tainter gates, as well as the spillway piers in 2011. Due to these improvements, emergency gate refinements have been developed in lieu of complete gate replacement. These refinements resulted in the development of an Engineering Documentation Report (EDR) in 2013 to support a variation to the emergency spillway gate replacement concept. In addition, a series of Design Documentation Reports (DDRs) are being developed to determine the final designs for increasing the height of Folsom dikes and dams by the authorized 3.5 feet. It is anticipated the DDRs for all of the engineering designs would be completed by the Fall of 2022.

The 2017 Folsom Dam Raise Project Final SEIS/EIR (USACE, 2017) examined the impacts of the Spillway Gate Modification (Tainter Gate) and Combination Earthen Raise/Concrete

Floodwall (e.g. the proposed project; Tainter gate refinements, earthen raise elements, and concrete floodwall elements) as the Folsom Dam Raise project was not fully designed in the 2007 PACR, nor was a full environmental analysis completed in the associated 2007 Folsom Dam Safety/Flood Damage Reduction EIS/EIR (Reclamation, 2007). Since the 2017 SEIS/EIR, it was determined that additional design documentation was necessary and this current Folsom Dam Raise Modifications Project DSEIS/EIR is being prepared to fully disclose design refinements and their associated environmental effects.

ES.2 PROJECT AREA

The project is located in the area surrounding Folsom Lake that falls within portions of Placer, El Dorado, and Sacramento Counties. Folsom Dam and its associated facilities are located 23 miles northeast of the City of Sacramento. The Folsom Dam and Reservoir (Folsom Lake) are located downstream from the north and south forks of the American River. The study area is contained around the Folsom Facility which consists of four dams: the Main Concrete Dam (Folsom Dam or Main Dam), the Left Wing Dam (LWD), the Right Wing Dam (RWD), and the Mormon Island Auxiliary Dam (MIAD), as well as eight Dikes (Dikes 1 through 8). The new Folsom Dam Auxiliary Spillway was completed in October 2017 and, a 3.5-foot raise of Dike 8 was completed on June 26, 2020, and construction of the Main Dam Tainter Gates Stoplogs will begin before the final draft of this document is complete.

In this document, the project area consists of Dikes 1 through 7, MIAD, the LWD and RWD (which tie into the Main Dam), the Main Dam, and associated haul routes, stockpile areas, construction staging areas, and mitigation areas. All figures can be found in the main body of this Draft below including the project area (Figures 1-1 and 1-2).

ES.3 BACKGROUND AND NEED FOR ACTION

Sacramento is identified as one of the most at-risk communities in the nation for flooding, resulting in a need to reduce this risk through various flood damage reduction measures. The existing system leaves the highly urbanized Sacramento area at an unacceptably high level of flood risk.

The initial need for increased flood protection in Sacramento was realized when major storms in northern California in 1986, and again in 1997, caused record flood flows in the American River watershed. Outflows from Folsom Dam, together with high flows in the Sacramento River, caused the river stages to exceed the designed safety margin of levees protecting the City of Sacramento. If these storms had lasted much longer, major sections of the levee would likely have failed, causing probable loss of human life and billions of dollars in damages. The effects of the 1986 and 1997 storms raised concerns over the adequacy of the existing flood risk management system. This led to a series of investigations on the need to provide additional protection for the Sacramento metropolitan area. The results of these investigations led to authorization of several flood risk management projects in the American River watershed, including the Folsom Dam Raise project.

With the construction of the Joint Federal Project (JFP), the current storage capacity of the reservoir allows for passing the probable maximum flood (PMF) event. However, the current crest elevation of the reservoir dikes and embankment dams would not provide sufficient freeboard to meet

design criteria for resisting wave height and wave run-up. A large enough flood event could cause the current dikes and/or embankment dams to sustain enough damage as to cause failure or overtop.

The primary purpose of the Folsom Dam Raise Modifications project is to reduce flood risk to the Sacramento area. The authorized top of flood pool would remain at reservoir water surface elevation 468.34 feet (NAVD88). Affixing top seal bulkheads over the emergency gates would allow higher flood pools across the spillway, adding flood damage reduction benefits while still safely passing the PMF without overtopping the Tainter gates. With added operational flexibility and enhanced management of the enlarged flood storage capacity (in the form of surcharge), flood damage benefits are realized with delayed operation for the emergency gates and prolonged outflows at or below the 160,000 cubic feet per second (cfs) threshold for more infrequent events up to a 1/240-year storm event (the authorized objective).

NEPA evaluation is required when a major Federal action may have significant impacts on natural and human environmental quality. The USACE has determined that the proposed project may have significant effects on the environment; therefore, an EIS is required. This DSEIS/EIR provides supplemental documentation and evaluates the potential direct, indirect, and cumulative environmental effects of alternative plans for the Folsom Dam raise. This DSEIS/EIR also identifies mitigation measures (MM) to avoid, minimize, and compensate for impacts.

ES.4 ALTERNATIVES

The Folsom Dam Raise project plan formulation process was developed and discussed in the American River Watershed Long-Term Study Final Supplemental Plan Formulation Report EIS/EIR (LTS EIS/EIR). Chapter 4.0 of the 2002 Long Term Study discussed plan formulation and screening of flood damage reduction measures and Chapter 5.0 described the alternatives. The two alternatives discussed in the 2017 Folsom Dam Raise SEIS/EIR were Alternative 1: No Action, and Alternative 2: Tainter Gate Refinements, Earth Raise Elements, and Concrete Floodwall Elements. The two alternatives discussed in this DSEIS/EIR are Alternative 1: No Action, and Alternative 2: construction of a new Dike 3, modified concrete floodwall elements, onsite borrow and disposal at MIAD West, a rock crushing operation at MIAD East, and a project mitigation plan. Additional alternatives were screened out for reasons described in Table ES-1.

Table ES-1. Measures and Alternatives Considered but Eliminated.

Alternative	Reason for Elimination
Raising the existing Dike 3 by 3.5 feet.	The existing Dike 3 contains woody vegetation and possibly areas of undocumented fill.
Onsite borrow/disposal at locations other than MIAD West in and around Folsom Lake.	Proposed borrow/disposal areas did not contain the correct constituents for fill material for the dikes/wing dams or the areas were deemed too environmentally or culturally sensitive.
3.5-foot earthen raises for Dikes 1-7 and MIAD.	Concrete floodwalls reduce material costs, air quality impacts, and associated mitigation costs.

ES.4.1 Alternative 1 – No Action

Under Alternative 1, no action, the USACE would not implement any of the following actions: 1) construction of a new Dike 3, 2) construction of Dike 1, Dikes 4-7, and MIAD as 3.5-foot concrete floodwall raises, 3) onsite borrow and disposal at MIAD West, 4) rock crushing operations at MIAD East, nor 5) disclose a comprehensive mitigation plan for the Folsom Dam Raise Modifications Project.

Under Alternative 1, the USACE would follow the actions described in the 2007 EIR/EIS and 2017 SEIS/EIR. This would include building Dike 3 as an in-place earthen raise; however, following the 2017 SEIS/EIR plan would leave the existing Dike 3 subject to a higher risk of failure. Studies conducted since the 2017 SEIS/EIR demonstrated that adding more material to what was found to be an unreliable embankment could further undermine the integrity of the embankment. The 3.5-foot earthen raises of Dikes 1, Dikes 4-7, and MIAD would incur higher project costs and higher air quality impacts (and associated mitigation costs) compared to concrete floodwalls. Hauling in and disposing of all earthen construction material offsite, instead of some onsite borrow and disposal, would contribute to greater air quality impacts and higher project costs. Rock crushing operations would not be conducted at MIAD East and the riprap stockpiled there would be hauled offsite rather than used for the Folsom Dam raise. Additionally, a comprehensive mitigation plan for the Folsom Dam Raise Modifications Project would not be formulated and implemented as part of an environmental document.

It should also be noted that construction of the 3.5-foot earthen raise of Dike 8 was completed June 26, 2020. It's likely that the contract for the Main Dam Stoplogs will be awarded before the completion of the Final SEIS/EIR associated with this Draft SEIS/EIR. Therefore, Dike 8 was, and the Main Dam Stoplogs would be covered by the 2007 EIS/EIR and the 2017 SEIS/EIR and not by this Draft. However, Dike 8 and the Main Dam Stoplogs will occasionally be mentioned in this Draft as they still pertain to portions of the overall Folsom Dam Raise Modifications project including, but not limited to, aspects such as mitigation. Dike 2, RWD, and LWD construction is generally the same as previously reported in the 2017 SEIS/EIR, Section 2.3. The design is generally the same, refinements to the design can be seen in Section 2.3. Any refinements to other elements such as haul routes, access routes, and staging areas for Dikes 1, 2, and 3, RWD, and LWD are described in Section 2.3.6.

ES.4.2 Alternative 2 –Construction of a New Dike 3, 3.5-Foot Concrete Floodwall Raises (Dike 1, Dikes 4-7, and MIAD), Onsite Borrow and Disposal at MIAD West, Rock Crushing Operations at MIAD East, and Project Mitigation Plan (Proposed Project/Proposed Action, Environmentally Preferable Alternative)

Alternative 2, the proposed project, would consist of various activities including construction of a new Dike 3, construction of Dike 1, Dikes 4-7, and MIAD as 3.5-foot concrete floodwall raises, onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, a project mitigation plan, and smaller scale actions that have been identified in the development of the Folsom Dam Raise Modifications Project design since the 2017 SEIS/EIR. These smaller scale actions include pumping water from Folsom Lake for construction activities, updates for projected air quality

impact calculations due to changes in project design and scheduling, changes to recreational access during construction, the replacement of a culvert under an access road north of Dike 1, the construction of a temporary access along Auburn Folsom Road for access to Dike 5, and a small spur dike concrete floodwall on the right side of the Auxiliary Spillway and another small concrete floodwall on the left (Folsom Lake Crossing) side of the Auxiliary Spillway, planting oak trees for mitigation at various locations within the Folsom Lake State Recreation Area (FLSRA), and modification of the Area of Potential Effects (APE) and staging areas for the dikes and dams under construction. The overall proposed project would be constructed beginning in 2022 and ending in roughly 2025.

Additionally, the plan for construction of the Main Dam Tainter Gates, and the 3.5-foot earthen raises of Dikes 2, and the concrete floodwall raises of the RWD and LWD are relatively the same as the description in the 2017 SEIS/EIR with minor exceptions, such as modifications to the APE. Those minor changes are incorporated into this DSEIS/EIR.

The currently anticipated schedule for the various portions of the project is indicated in Table ES-2 below. The onsite borrow and disposal at MIAD West and the products of the rock crushing operations at MIAD East riprap stockpile may serve any portion of the project.

Proposed construction elements for Alternative 2 are discussed below, beginning with the design elements of the construction of a new Dike 3 followed by the modified concrete floodwall elements, onsite borrow and disposal at the MIAD West, rock crushing operations for the riprap stockpile at MIAD East, and a project mitigation plan.

Table ES-2. Anticipated schedule for proposed projects (Alternative 2).

Project Activity	Starting Year	Ending Year	Duration
Main Dam Tainter Gates & related structural refinements	2022	2025	4 years
LWD, RWD, MIAD, and Dikes 1, 4, 5, & 6 – concrete floodwall raises	2022	2024	2 years
Dikes 2 & 7 - earthen embankment raise New Dike 3 – earthen embankment	2022	2024	2 years

New Dike 3 Construction

The new Dike 3 would be an entirely new embankment located approximately 80 feet closer to Folsom Lake compared to the existing Dike 3 (see figures in Section 2.3). Studies found that the current Dike 3 embankment may be unreliable because it contains woody vegetation and possibly areas of undocumented fill. The new Dike 3 will consist of materials similar to the other dikes and would be approximately 150 feet longer than the current Dike 3. This design plan was not part of the 2007 EIS/EIR nor the 2017 SEIS/EIR because, at the time, the design plan had not been developed for Dike 3 and exploration of the condition and contents of Dike 3 had not been conducted.

Modified Concrete Floodwall Construction

Dike 2 remains an earthen raise of 3.5 feet and the RWD and LWD remain concrete floodwall raises similar to the description in the 2017 SEIS/EIR. However, differing from the 2017 SEIS/EIR, the

current design would provide flood protection for Dike 1, Dikes 4-7, and MIAD to elevation 486.34 feet (a 3.5-foot raise) by placing a concrete floodwall along the upstream (water) side of the crest to elevation 486.34 feet. The upstream (water side) and downstream (land side) fill slopes will match the existing respective fill slopes. The fill placed on the crest would only be placed on the existing crest (i.e., does not continue down the slope on the water or land side). The crest widths vary based on the existing crest widths and the space available after the concrete wall is placed. Additionally, the concrete floodwall designs vary slightly at each site to account for differences in loading projected for flooding events at each site. Figures are available in Section 2.3.

Onsite Borrow and Disposal at MIAD West

The area referred to as MIAD West is located south of Folsom Point and north of Cummings Way (Figure available in Section 2.3). MIAD West is an area that consists primarily of materials deposited from previous construction in the Folsom Lake area. It is proposed that material from MIAD West would be used for various aspects of the 3.5-foot Folsom Dam Raise Modifications project. Additionally, uncontaminated disposal materials from various aspects of the project would be deposited at MIAD West to maintain a similar topography and drainage patterns. Oak plantings at MIAD West that may be disturbed by borrow and disposal operations would be replaced at a 1:1 ratio in the proposed oak planting mitigation areas (see Project Mitigation Plan below).

Rock Crushing Operations at MIAD East

The riprap stockpile at MIAD East is located just south of the western side of the MIAD (figure available in Section 2.3). The 2017 SEIS/EIR stated that the MIAD East riprap stockpile must be used in the Project or the rock must be hauled off site before the completion of the project. Rock crushing and sorting operations at MIAD East would facilitate the processing of the riprap stockpile to meet the material size requirements for various aspects of the Folsom Dam Raise Modifications project. These materials may be used for any aspect of the project. Water pumped from Folsom Lake may be required to wash the processed rock. Once the riprap stockpile and all associated rock crushing equipment has been removed from MIAD East, restoration would consist of planting the area with a mixture of native grasses and forbs as per the restoration requirements described in Table 2-4 in Appendix A.

Project Mitigation Plan

One of the purposes of this DSEIS/EIR is to define the anticipated mitigation requirements. Offsite mitigation will most likely be used for any impacted wetlands and elderberry shrubs (which provide habitat for the endangered valley elderberry longhorn beetle or VELB) as those impacts are expected to be minor. Any elderberry shrubs that must be removed for construction would be transplanted to a commercial mitigation bank within the service area as per U.S. Fish and Wildlife Service guidance. However, none of the elderberry shrubs within the project footprint are expected to require transplantation at this time. Impacts to wetlands would be mitigated by payments to commercial mitigation banks that contain the project site in their service area or through the use of USACE's Regulatory in-lieu fee program. At this time, the only expected wetland impacts are the replacement of the culvert under Old County Road north of Dike 1 and a temporary haul route at the toe of Dike 1 that will be below the ordinary high-water mark (OHWM) of Folsom Lake.

Trees removed for construction are estimated to be approximately 12.3 acres of oak woodland habitat. Mitigated at a 1.2:1 ratio, this equates to approximately 14.8 acres of oak plantings required for mitigation. This calculation includes trees that have been removed for the construction of Dike 8, trees that are anticipated to be removed for clearing staging areas and the construction of Dikes 1-6. No tree removal is anticipated for Dike 7, RWD, LWD, Main Dam, or MIAD construction although any tree removal necessary would be mitigated at the same 1.2:1 ratio. The oak plantings that may be disturbed at the MIAD West borrow site cover 8.8 acres, which would be mitigated at a 1:1 ratio. The total anticipated acreage of all oak plantings required for mitigation would be approximately 23.6 acres. The acreage for all proposed oak planting sites equates to 23.6 acres plus an additional 1.2 acres (to account for the fact that a road, trails, and a few existing trees and shrubs are found within the proposed planting sites where trees would not be planted) for total of approximately 24.8 acres of oak tree plantings. These impacts would be mitigated by planting native oaks in 10 separate areas around Folsom Lake, including near Dike 1, Dike 2, Dike 4, Dike 8, and MIAD. All figures can be found in Section 3.3.3.

ES.5 ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

The following subsections provide a brief summary of the anticipated effects of the proposed project (Alternative 2) on various resource categories. An array of measures would be implemented to help avoid, minimize, and mitigate the project's adverse environmental impacts. Table 2-3 in Section 2.4 provides a comparative summary of environmental effects, levels of significance, and mitigation for the No Action Alternative vs. Proposed Project (Alternative 2). Table 2-4 in Appendix A lists the detailed mitigation measures and related environmental commitments for Alternative 2.

Recreation

During the construction of portions of the proposed project (e.g. portions involving the construction of Dikes 1-7 and MIAD 3.5-foot raises, rock crushing operations at MIAD East, and borrow/disposal at MIAD West) there would be restrictions to recreational facilities and resources in the immediate vicinity of construction work as well as a reduction in the availability and quality of recreational facilities and opportunities. The recreational impacts detailed in this DSEIS/EIR are in addition to those mentioned in the 2017 SEIS/EIR.

While these adverse impacts would be temporary and short term, they are deemed significant since construction of each of the cited portions of the project would last approximately 2 years. Proposed avoidance, minimization, and mitigation measures would help reduce the magnitude of these temporary impacts, but not to a level that is less than significant. The long-term impacts of Alternative 2 to recreational resources would be less than significant with mitigation.

Vegetation and Wildlife

Existing habitats would be adversely disturbed during project construction. Table ES-3 illustrates the differences between the impacts calculated for the 2017 SEIS/EIR and this DSEIS/EIR.

Table ES-3. Changes in acreage of affected habitat in the 2017 SEIS/EIR vs. 2021 DSEIS/EIR.

Habitat	2017 SEIS/EIR (acres)	2021 DSEIS/EIR (acres)
Developed/Disturbed	223.6	224.5
Lake	98.3	57.4
Annual grassland	66.9	70.3
Oak woodland	14.5	38.7
Oak savanna	2.5	2.5
Riparian Woodland	2.2	2.2

The change in design, from primarily earthen raises to primarily concrete floodwall raises, accounts for the decreases in acres of lake habitat impacted. The increase in oak woodland and annual grassland acreage impacted is primarily due to the construction of a new Dike 3. Adverse impacts would largely be temporary and short term, although there may be permanent loss of limited acreages of oak woodlands and annual grasslands. The single riparian woodland area near MIAD would be preserved.

Project construction would require the replacement of a culvert under Old Country Road north of Dike 1 and a haul route at the waterside toe of Dike 1 below the ordinary high-water mark (OHWM) but would result in minimal wetland disturbance; hence such impacts would be less than significant. Disturbed topography would be restored to mimic pre-construction topography and the disturbed area would be planted with a mixture of native grasses and forbs. Impacts to wetlands would be mitigated by payments to commercial mitigation banks that contain the project site in their service area or through the use of USACE's Regulatory in-lieu fee program. These short-term impacts would be less than significant given the proposed mitigation measures.

Wildlife species would be temporarily displaced during the 4-year project construction period. Terrestrial animals could be injured or killed by construction work. If any active bird nests must be removed, young occupying such nests could perish. During project construction there would be substantial degradation of wildlife habitats directly impacted by construction activities. Wildlife access to various habitats within and adjacent to the project work areas would be adversely affected during construction. After project construction, there would be no substantial fragmentation or degradation of habitats given the proposed mitigation measures. Natural habitats would not be affected to a point where wildlife presently utilizing the area could not live or successfully reproduce in or near affected areas.

Short-term impacts would be avoided and minimized as much as possible, but the impact would be significant. Overall, the proposed project's long-term impacts to vegetation, wildlife, and wildlife habitats would be less than significant with mitigation.

Special Status Species

Project construction associated with this DSEIS/EIR would be may affect but unlikely to adversely affect the valley elderberry longhorn beetle (VELB) in the short term and long term. For the project as a whole (including the proposed actions of this DSEIS/EIR and those of the 2007 EIS/EIR and 2017 SEIS/EIR), because of proposed mitigation measures and the level of take expected, the project impacts are not likely to result in jeopardy to the VELB.

There is a remote chance that bald eagles could be disturbed during project construction as they use trees around Folsom Lake to perch. There are no known bald eagle nests in the immediate vicinity of the proposed work areas. Through avoidance and minimization measures, the project would not affect any bald eagles in the short or long term to a degree that causes (or may cause) injury to an eagle or a decrease in eagle productivity or nest abandonment. Nesting Swainson's hawks, loggerhead shrikes, white-tailed kites, and Peregrine Falcons could also be temporarily and adversely disturbed during project construction. This is unlikely; however, such impacts would be rendered less than significant and temporary by implementing avoidance, minimization, and mitigation measures recommended by the California Department of Fish and Wildlife (CDFW).

Other migratory birds may nest in, and bats may roost in, trees or shrubs that are within or close to the proposed project's limits of construction. Removal of trees/shrubs and general construction noise and activity could threaten active migratory bird nests and bat roosts resulting in short term adverse impacts. Such impacts would be less than significant with avoidance and minimization to the extent practicable. It may, however, be necessary to obtain a Special Purpose Permit from USFWS to remove active migratory bird nests in cases where direct impacts cannot be avoided. A recently developed roosting bat protocol would be followed to reduce impacts to bats.

Air Quality

Emissions from construction equipment and worker vehicles would temporarily degrade air quality over the course of the 4-year project construction period. Primary pollutants of concern that would be emitted include ROG, NOx, CO, PM_{10}, $PM_{2.5}$, and SOx. Estimated emissions indicate the Placer County Air Pollution Control District (PCAPCD) threshold for PM_{10} would be exceeded in years 2022 and 2023. Estimated emissions indicate local daily Air Quality Management District thresholds for the other cited pollutants would not be exceeded. Emissions would also not exceed the USEPA's annual General Conformity *de minimis* thresholds. Therefore, a conformity determination is not required. A few isolated areas slated for construction work may harbor naturally occurring asbestos (NOA). Dust generated in such areas could release NOA, however use of state prescribed BMPs during construction would greatly minimize this potential problem. All adverse air quality impacts would be short term and less than those calculated in the 2017 SEIS/EIR and would be less than significant with mitigation in the long term.

Climate Change

Emissions from construction equipment and worker vehicles would include CO_2 and other "greenhouse gases" that can contribute to climate change. Estimated emissions of greenhouse gases, expressed as CO_2e, would not exceed the PCAPCD threshold of 10,000 metric tons CO_2e per year and would not exceed the federal CO_2e reporting threshold of 20,000 metric tons CO_2e per year. However, these emissions could exceed the SMAQMD threshold of 1,100 metric tons CO_2e per year during 2022.

This DSEIS/EIR utilized the SMAQMD Road Construction Emissions Model, Version 9.0 to estimate emissions of CO_2e that may be generated during project construction. Project construction contractors may take an approach to construction that differs from the approach that formed the basis of the models. This could result in CO_2e emissions that not only exceed the SMAQMD threshold, but

also the PCAPCD threshold and the Federal reporting threshold. If necessary, compensatory mitigation would be provided for CO_2e emissions that occur in Sacramento County and exceed the SMAQMD threshold. If CO_2e emissions generated by the proposed project in Placer County exceed the PCAPCD threshold, then similar compensatory mitigation would be provided for this exceedance. In this manner, the project's effects on climate change would be less than significant in the short term and long term.

Aesthetics and Visual Resources

Access to a few scenic vistas would be temporarily limited during project construction, but there would be no long-term adverse effect on scenic vistas. The existing visual character and quality of the affected dams, dikes, and staging areas would be degraded during construction, as would be certain viewsheds. Public access to various recreational trails would be temporarily restricted during construction, thereby limiting access to some natural areas that have relatively high aesthetic qualities. These impacts would be short term. Following project completion, there would be one permanent visual impact at Dike 3 because there is no plan to remove and remediate the existing Dike 3 following the construction of the new Dike 3 embankment. For the remainder of the proposed actions, there would be no remaining long term adverse impacts to aesthetics and visual resources as a result of proposed mitigation measures and the short-term nature of project construction.

The proposed project's potential impacts to aesthetics and visual resources would be less than significant with mitigation in the long term.

Noise and Vibration

Project construction activities would cause a substantial temporary short-term increase in ambient noise levels. Nearby residents, wildlife, and recreationists could be adversely affected and experience noise from construction equipment and activities. Affects to residences from construction noise and vibration would primarily include residences along haul routes. Residents adjacent to the construction areas would benefit from the buffer of trees and geographic features to dampen the noise and vibrations. Following project completion, the project would not have any long-term noise effects.

Although adverse noise impacts would be temporary, the project's noise impacts would be significant and unavoidable, even with implementation of the measures proposed to avoid and minimize noise effects. Long-term impacts would be less than significant.

Water Quality and Waters of the United States

Project construction activities, such as drilling, excavation, hauling, earthwork, and fill placement may disturb or mobilize sediments, having the potential to adversely affect total suspended solids, pH, turbidity, and dissolved oxygen in stormwater runoff and waters receiving this runoff in the short term. Debris and inadvertent spills of fuels, oils, or concrete mix materials from construction equipment, work areas, or the staging areas could be a source of contamination to Folsom Lake, the American River, and nearby wetlands and drainage swales and ditches. Through implementation of the mitigation measures proposed, water quality would not be affected following project completion.

The contractor would be required to obtain a Construction General Permit from the State Water Resources Control Board and prepare a stormwater pollution prevention plan (SWPPP) to limit erosion and manage sediment generated from ground disturbance. The contractor would also be required to have a spill prevention and countermeasure plan for hazardous material discharges. If any portion of the project impacts wetlands, the USACE would obtain a Clean Water Act Section 401 Water Quality Certification (WQC) from CVRWQCB prior to starting such construction activities.

Although Alternative 2 (proposed project) would have temporary adverse effects on water quality, these impacts would be less than significant with mitigation in the long-term.

Cultural Resources

Alternative 2 would result in no adverse effects to historic properties. Historic properties consist of Native American, historic-era, and built environment cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Folsom Dam and the Folsom Lake Dikes, which comprise the Main Dam, Left Wing Dam, Right Wing Dam, Dikes 1-8, and MIAD, are historic properties eligible for inclusion in the NRHP. These properties are eligible for the NRHP under Criterion A, for their association with the development, construction, and operation of Reclamation's Central Valley Project, and their role in reducing flood risk in the Sacramento metropolitan area. Folsom Dam and the Folsom Lake Dikes are the only known historic properties in the Alternative 2 APE.

USACE determined through the National Historic Preservation Act (NHPA) Section 106 process that Alternative 2 would result in changes to the physical appearance of the LWD, RWD, Dikes 1-7 and MIAD, and the location of Dike 3; however, those changes would not alter any of the characteristics that qualify these properties for NRHP inclusion. Based on this determination, USACE has proposed a Section 106 finding of no adverse effect for Alternative 2, pursuant to 36 CFR § 800.5(b), and currently is consulting with the California State Historic Preservation Officer and other Section 106 consulting parties regarding this finding. USACE uses effects determinations arrived at through Section 106 compliance to assess effects to cultural resources under NEPA and to mitigate for adverse effects under both laws. USACE must conclude the Section 106 process for Alternative 2 prior to signing a Record of Decision to implement this proposed action.

CEQA includes provisions that specifically address the consideration of important cultural resources, which are referred to as "historical resources" under State law. Historical resources are cultural resources that are listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (California PRC Section 21084.1). Historical resources also include Tribal Cultural Resources, which are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe.

Alternative 2 would not result in adverse effects to any known historic properties or historical resources. Folsom Dam and the Folsom Lake Dikes would undergo physical changes; however, these changes would not alter the character or historical significance of these structures. In addition, no adverse effects to Tribal Cultural Resources, or other historical resources, are anticipated. There would be no short-term or long-term effects as a result of this project.

Resources Not Considered in Detail

Alternative 2 would not result in significant effects to the following resources/issues: hydrology and hydraulics; hydropower; water supply; fisheries and aquatic resources; geology; mineral resources; seismicity; soils (including prime farmland soils); land use and land planning; agriculture and forestry resources; socioeconomics; population and housing; public utilities and services; hazardous, toxic, and radioactive wastes; public safety; transportation and circulation; energy, and wildfires. Initial evaluation of the effects of construction of the selected Alternative 2 indicated that there would likely be little to no direct, indirect, or cumulative effects on these resources. Additionally, since the external haul routes and other aspect of traffic and circulation have remained relatively unchanged and the impacts would be less than those described in the 2017 SEIS/EIR, traffic and circulation are not considered in detail in this draft SEIS/EIR.

ES.6 COMPLIANCE WITH APPLICABLE LAWS, POLICIES, AND PLANS

This document is a joint DSEIS/EIR, which fully complies with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements. The project would comply with all applicable Federal environmental laws and regulations, as well as all applicable state, regional, and local laws, regulations, and ordinances. The NOI for this project was published before Army implementation of the Council on Environmental Quality's (CEQ) updated NEPA regulation 40 CFR 1500-1508 (September 14, 2020) therefore, this document adheres to prior NEPA regulations.

ES.7 PUBLIC INVOLVEMENT

Considering COVID-19 restrictions, no in-person public scoping meetings were held. Instead, a webinar public scoping meeting for the Folsom Dam Raise Modification project was held on April 8, 2020. The meeting was advertised in the Sacramento Bee and mail and e-mail announcements were also sent to stakeholders and other interested parties. The purpose of the meeting was to inform the public about the proposed project and to solicit input to help scope the DSEIS/EIR. A website (https://www.spk.usace.army.mil/Missions/Civil-Works/Folsom-Dam-Raise/), a one-page fact sheet, and an email address (Folsom-Dam_Raise@usace.army.mil), were developed to provide the public with information and collect comments about the project on a continuous basis. In addition, a Notice of Intent was filed with the Federal Register on April 1, 2020. No comments were received.

This DSEIS/EIR will be circulated for a 45-day review period October 29 – December 13, 2021 to: Federal, State, and local agencies, organizations, elected officials, Native American tribes, and individuals known to have an interest in the project. A Notice of Availability (NOA) for the initial DSEIS/EIR was published in the Federal Register on October 29, 2021. This DSEIS/EIR will be made available both on the USACE Sacramento District website as well as the website for the CVFPB. Hard copies of this DSEIS/EIR were provided to the Folsom Public Library, Orangevale Branch Library, Eldorado County Library, and Roseville Library. Letters were mailed and emails sent to interested parties and local residents notifying them of the availability of the DSEIS/EIR, the public comment period, the method for submitting comments, the date, time, and website for the public meetings mentioned below, and how to obtain copies of the DSEIS/EIR. Electronic copies of

the DSEIS/EIR, along with the information stated above, were sent to various resource agencies, interested parties, and elected officials. Public notices and news releases were published in local newspapers to advise readers of the availability of the DSEIS/EIR, the public comment period, the method for submitting comments, and the date, time, and website for the public meetings. Two public webinar meetings will be held during the 45-day review period for the initial DSEIS/EIR to discuss the proposed project and receive public input.

Written comments regarding this DSEIS/EIR received during the public review periods would be included in an appendix in the Final SEIS/EIR together with responses to substantive comments. Coordination with Native American Tribes concerning the proposed project and this DSEIS/EIR would also be addressed in an appendix in the Final SEIS/EIR, as will be comments submitted by such tribes and responses to these comments. All comments received during the public review periods would be considered when preparing the Final SEIS/EIR. The Final SEIS/EIR would be published and no earlier than 30 days later USACE would make a decision on the project and complete a Record of Decision (ROD). Subsequently, the CVFPB would also make a decision on the Final SEIS/EIR at a regularly scheduled CVFPB meeting and would complete a Notice of Determination (NOD).

ES.8 ISSUES OF KNOWN CONTROVERSY

Some significant and controversial issues have been raised by agencies and the public relating to the construction of the 3.5-foot Folsom Dam raise and related features. These issues were identified based on feedback gathered in preliminary studies from formal and informal agency meetings, workshops, public meetings, telephone discourse, letters, and emails. Many of these issues were detailed in the 2017 SEIS/EIR and will not be repeated here. However, the following new issues that have arisen since the 2017 SEIS/EIR are detailed below.

- The current design eliminated the pedestrian detour at MIAD (described in the 2017 SEIS/EIR) due to construction safety concerns.
- Increased traffic through the Douglas Boulevard entrance for construction of Dikes 1-3.

ES.9 UNRESOLVED ISSUES

While there will be no changes in normal operations with the construction of the Folsom Dam raise, the raise would result in the ability to sustain an increased flow of 160,000 cfs for a longer period of time and would potentially allow Folsom Lake to stage as high as 486.34 feet (NAVD88). Any new operations that could result from the construction of the Folsom Dam Raise Modifications Project would be dependent upon first updating the existing Water Control Manual (WCM) for Folsom Dam and its facilities. As it stands, the proposed 3.5-foot raise is only an increase in the surcharge zone of the reservoir (lake), not the operational space, and would only have an effect in the events that encroach in that surcharge zone. In other words, the water storage capacity of Folsom Lake for municipal and recreational uses would not increase as a result of this project.

This DSEIS/EIR does not include any evaluation of how changes in operation of the Main Dam and Auxiliary Spillway allowed by completion of the proposed Folsom Dam Raise Modifications Project could affect environmental, social, and cultural resources. Upon or near

completion of construction of the overall Folsom Dam Raise Modifications project, new operation rules that would utilize the operational flexibilities provided by the Folsom Dam Raise Modifications project would require an update to Water Control Manual (WCM). A WCM update that accounts for the new auxiliary spillway (Folsom JFP) was approved in June 2019, supported by a joint supplemental EA/EIR with separate FONSI and NOD signed 24 April 2019 and 22 Jan 2019, respectively. Any flood risk management operation changes required to implement the Folsom Dam Raise Project will be analyzed in detail in a subsequent WCM Update and accompanying environmental document when proposed changes to operation rules have been developed to a sufficient level of detail to be evaluated.

ES.10 PREFERRED PLAN

Alternative 2, which includes a new Dike 3 embankment, 3.5-foot concrete floodwall raises (for Dikes 1, Dikes 4-7, and MIAD), borrow/disposal at MIAD West, rock crushing operations at MIAD East, and a project mitigation plan has been identified as the preferred plan. Alternative 1, the No Action Alternative, was not selected because it was not considered to be in the best interest of public safety since it did not provide for sufficient increased flood protection. Alternative 2 is expected to provide continuous flood-risk management benefits to the Sacramento metropolitan area and provide flood damage reduction.

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ACRONYMS & ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APE	Area of Potential Effects
ARB	California Air Resources Board
BA	Biological Assessment
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CCAO	Central California Area Office
CCTS	Central California Taxonomic System
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CMU	Concrete Masonry Unit
CNDDB	California Natural Diversity Database
CSUS	California State University, Sacramento
CVFPB	State of California Central Valley Flood Protection Board
CVP	Central Valley Project
CWA	Clean Water Act
DDR	Design Documentation Reports
DPM	Diesel Particulate Matter
DPR	California Department of Parks and Recreation
DSEIS/EIR	Draft Supplemental Environmental Impact Statement/Environmental Impact Report
DWR	California Department of Water Resources
EDR	Engineering Documentation Report
ESTG	Emergency Spillway Tainter Gates
EWDAA	Energy and Water Development Appropriations Act
FHWA	Federal Highway Administration
FLSRA	Folsom Lake State Recreation Area
FRM	Flood Risk Management
GHG	Greenhouse Gas
GIS	Geographic Information System
HAP	Hazardous Air Pollutant
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plans
HTRW	Hazardous, Toxic, and Radioactive Waste
ITE	Institute of Transportation Engineers
JFP	Joint Federal Project
kV	Kilovolt
kW	Kilowatts

LOS	Level of Service
LWD	Left Wing Dam
MBTA	Migratory Bird Treaty Act
MIAD	Mormon Island Auxiliary Dam
MPO	Metropolitan Planning Organization
MSE	Mechanically-Stabilized Earthen
NAAQS	National Ambient Air Quality Standards
NCCP	National Community Conservation Plans
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Naturally Occurring Asbestos
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PACR	Post Authorization Change Report
PG&E	Pacific Gas and Electric Company
PMF	Probable Maximum Flood
ROD	Record of Decision
ROG	Reactive Organic Gases
RWD	Right Wing Dam
RWQCB	Central Valley Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SAFCA	Sacramento Area Flood Control Agency
SHPO	State Historic Preservation Officer
SIP	State Implementation Plans
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Metropolitan Utility District
SPCP	Spill Preventions and Countermeasure Plan
SVAB	Sacramento Valley Air Basin
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VELB	Valley Elderberry Longhorn Beetle
WAPA	Western Area Power Administration
WCM	Water Control Manual

CHAPTER 1.0 - INTRODUCTION

This document is a joint draft Supplemental Environmental Impact Statement/Environmental Impact Report (DSEIS/EIR) prepared by the U.S. Army Corps of Engineers (USACE), 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 (NFS) for the proposed Folsom Dam Raise Modifications project, and are also considered as being "cooperating agencies" under NEPA. The U.S. Bureau of Reclamation (Reclamation) owns and manages the land where the proposed project would be located and is considered as being a "participating agency" under NEPA.

This DSEIS/EIR is a supplement to the 2017 Final SEIS/EIR for the Folsom Dam Raise Project (USACE, 2017) prepared by USACE, which was a supplement to the 2007 Final EIS/EIR for the Folsom Dam Safety and Flood Damage Reduction Project (Reclamation, 2007) prepared by Reclamation. Both the 2007 EIS/EIR and the 2017 SEIS/EIR are incorporated by reference throughout this DSEIS/EIR. This DSEIS/EIR has been prepared to evaluate the potential environmental impacts of the alternatives proposed in the Folsom Dam Raise Modifications project. This document evaluates project alternatives and includes mitigation measures to reduce, minimize, or avoid, where feasible, any significant and potentially significant adverse impacts.

1.1 Authorization

There are several authorizations that have led to this DSEIS/EIR. They include:

- Section 209 of the Flood Control Act of 1962 (Pub. L. No. 87-875, § 209, 76 Stat. 1180, 1196-98 (1962)), authorizes studies for flood control in northern California. This is the basic authority for the USACE to study water resource related issues for the American and Sacramento Rivers.

- 1996 Water Resources Development Act (WRDA) (Pub. L. No. 104-303, § 101(a)(1), 110 Stat. 3658, 3662-3663 (1996)): Congress authorizes levee improvement features common to all three plans in the *1996 American River Watershed Project, California, Supplemental Information Report* (1996 SIR). The 1996 SIR described multiple alternative plans, of which certain levee and other flood system improvements were "common" to all alternatives: "Common Features."

- 1999 WRDA, Section 101(a) (6) (Pub. L. 106-53, § 101, 113 Stat. 274 (1999)) authorizes the Folsom Dam Modification Project (modified river outlets), as identified in the 1996 SIR.

- 2004 Energy and Water Development Appropriations Act (EWDAA), Section 128 ((Pub. L. No. 108-137, § 128, 117 Stat. 1838, (2003)) authorizes a 7-foot raise of Folsom Dam (including replacement of 8 spillway Tainter gates), based on the recommendations contained in the November 2002 Chief of Engineers Report in the Corp's 2002 Long Term Study Final Supplemental Plan Formulation Report.

- 2006 EWDAA, Section 128, (Pub. L. No. 109-103, §128, 119 Stat. 2259-2260 (2006)): The Secretary of the Army and the Secretary of the Interior are directed to collaborate on authorized activities to maximize flood damage reduction improvements and address dam safety needs at Folsom Dam and Reservoir, California. The Secretaries shall expedite technical reviews for flood damage reduction and dam safety improvements. In developing improvements under this section, the Secretaries shall consider reasonable modifications to existing authorized activities. The Secretaries are authorized to expend funds for coordinated technical reviews, joint planning, and preliminary design activities. This collaboration on maximizing flood dam reduction and dam safety improvements at Folsom Dam and Reservoir was identified as the Joint Federal Project (JFP).

- WRDA 2007, Section 3029 (b) (Pub. L. No. 110-114, §3029, 121 Stat. 1112 (2007)): Based on recommendations from the 2007 Post Authorization Change Report (PACR), the Folsom Dam Raise and Folsom Dam Modifications Projects were revised to authorize construction of an auxiliary spillway instead of enlarging the dam's existing river outlets and reduction in the height of the dam raise features to 3.5 feet.

1.2 Project Location

The project is located in the area surrounding Folsom Lake that falls within Placer, El Dorado, and Sacramento Counties (Figure 1-1 below). The Folsom Dam and Reservoir (Folsom Lake) are located downstream from the confluence of the north and south forks of the American River. The area mainly consists of Federally owned lands that are managed by the California Department of Parks and Recreation (State Parks). Key features addressed in this DSEIS/EIR border the south and western sides of Folsom Lake and include Dikes 1 through 7, the Main Dam, the Left Wing Dam (LWD), the Right Wing Dam (RWD), the Mormon Island Auxiliary Dam (MIAD), and areas surrounding MIAD referred to as MIAD East and MIAD West, (Figure 1-2 below). Although construction of the 3.5-foot Dike 8 raise was completed June 26, 2020, Dike 8 will be occasionally mentioned in reference to mitigation and other issues.

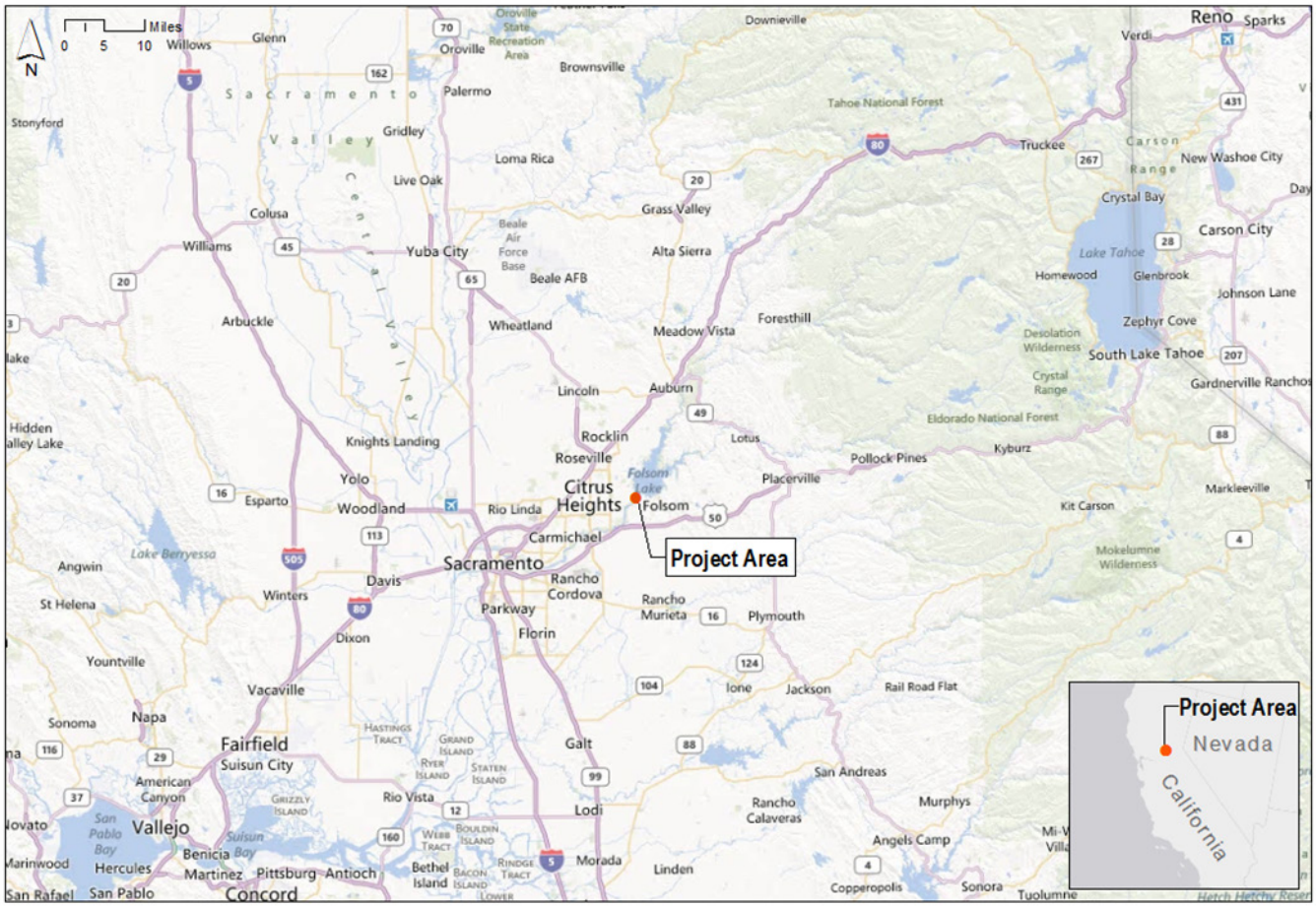

Figure 1-1. Project Area Map

1.3 Background

See the 2017 SEIS/EIR for a detailed discussion of the project background. Since the 2017 SEIS/EIR, a series of Design Documentation Reports (DDRs) have been developed to document the designs for increasing the height of Folsom Dikes 1-7, MIAD, LWD, and RWD by 3.5 feet (Figure 1-2 below). It is anticipated the DDRs for all the engineering designs would be completed by Fall of 2022. This DSEIS/EIR was prepared to disclose revised project alternatives and updated project-related effects of the proposed Folsom Dam Raise Modifications project since the final 2017 SEIS/EIR was published.

The DDRs are still being developed for the Main Dam, MIAD, LWD, RWD, and Dikes 1-7 and new components have been added to the project. This DSEIS/EIR is being prepared to fully disclose the new project components and update project-related effects of the proposed Folsom Dam Raise Modifications project. These new components are being added due to the design plan changes and material source changes.

The primary objectives of the overall Folsom Dam Raise project are (1) flood risk management, (2) ecosystem restoration, and (3) construction of a permanent bridge downstream of Folsom Dam (which was completed in 2009). The Joint Federal Project (JFP) was completed in late

2017. The JFP included construction of an auxiliary spillway consisting of an approach channel, a six Tainter gate control structure, and a chute and stilling basin. Construction of the Folsom Dam Raise project began in late 2019 with Dike 8. Dike 8 construction was completed June 26, 2020. Design on the remaining phase of the overall Folsom Dam Raise project (e.g., the ecosystem restoration component) would begin after construction of the dam raise features.

Since the publication of 2017 SEIS/EIR, the Folsom Dam Raise project was reviewed by a Change Control Board (CCB) on June 15, 2020, which led to a series of Course of Action (COA) plans focused on reducing project costs. From those COA's, the plan to primarily use concrete floodwalls to raise the dikes and dams 3.5 feet, instead of primarily earthen raises, emerged. The purpose of the Folsom Dam Raise Modifications project DSEIS/EIR is to disclose the design changes since the 2017 SEIS/EIR for public review.

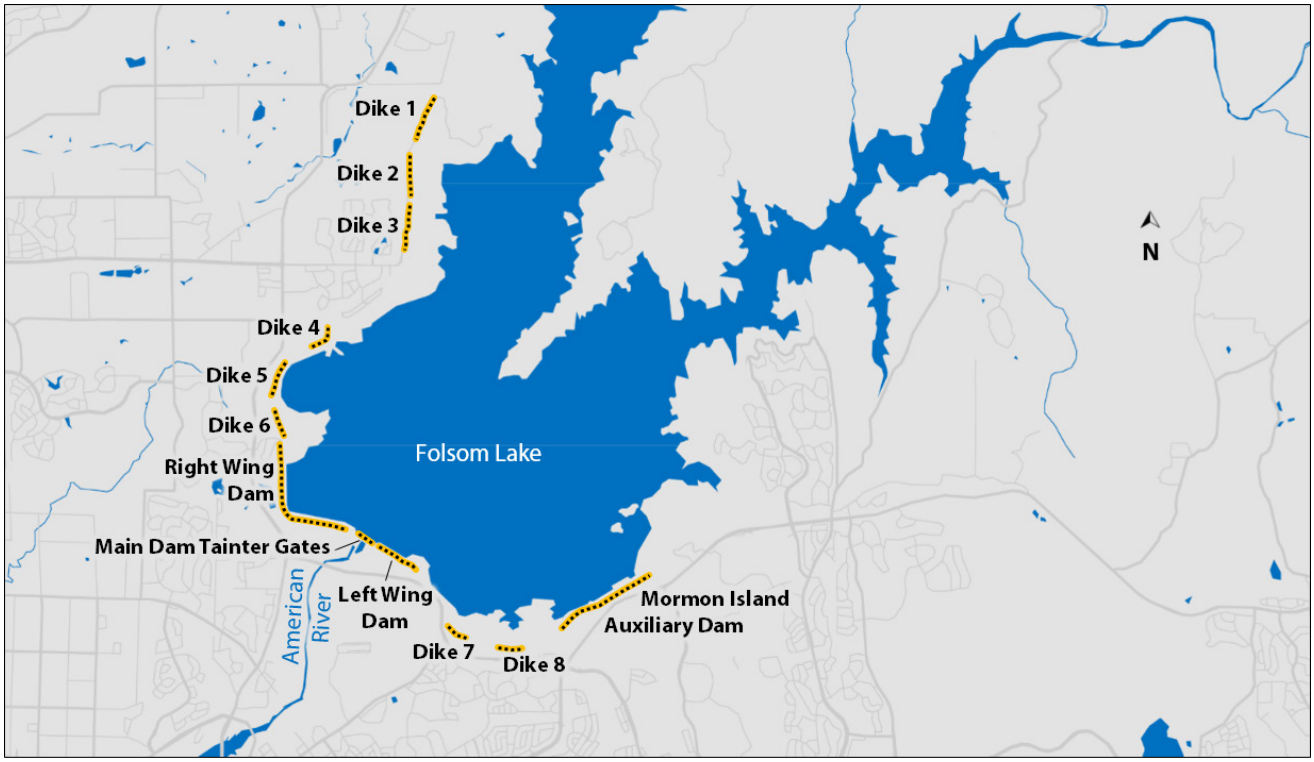

Figure 1-2. Folsom Lake and the Locations of the Structural Aspects of the Folsom Dam.

1.4 Project Purpose, Need for Action, and Objectives

Purpose

The purpose of the Folsom Dam Raise Modifications project is to reduce flood risk to the Sacramento area. The authorized top of flood pool would remain at reservoir water surface elevation 468.34 feet NAVD 88. Affixing top seal bulkheads over the Main Dam emergency gates would allow higher flood pools across the spillway, adding flood damage reduction benefits while still safely passing the Probable Maximum Flood[1] (PMF) without overtopping the Tainter gates. With added

[1] The Probable Maximum Flood is the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in a particular drainage area.

operational flexibility and enhanced management of the enlarged flood storage capacity (in the form of surcharge), flood damage benefits are realized with delayed operation for the emergency gates and prolonged outflows at or below the 160,000 cubic feet per second (cfs) threshold for more infrequent events up to a 1/240-year storm event (the authorized objective).

There would be no immediate changes in normal operations with the construction of the dam raise; however, the raise would result in the ability to sustain an increased flow of 160,000 cfs for an extended period (as defined by the Emergency Spillway Release Diagram in the Water Control Manual) and could have possible inundations up to 486.34 feet (NAVD88) during very rare storm events that generate high inflow events into the reservoir. The Folsom Dam Raise Modifications project would offer increased operational flexibility given the greater surcharge zone and ability to delay operation for the emergency gates and prolonged outflows at or below the 160,000 cfs threshold. New operation rules that would utilize the operational flexibilities provided by the dam raise would require an update to the Water Control Manual (WCM). A WCM update that accounted for the new auxiliary spillway (Folsom JFP) was approved in June 2019, supported by a joint supplemental EA/EIR with separate FONSI and NOD signed 24 April 2019 and 22 Jan 2019, respectively. Any flood risk management operation changes required to implement the Folsom Dam Raise Project will be analyzed in detail in a subsequent WCM Update and accompanying environmental document when proposed changes to operation rules have been developed to a sufficient level of detail to be evaluated.

Need

Sacramento is identified as one of the most at-risk communities in the nation for flooding. Therefore, there is a need to reduce this risk through numerous flood damage reduction measures. The existing system leaves the highly urbanized Sacramento area at an unacceptably high level of flood risk.

The initial need for increased flood protection in Sacramento was realized when major storms in northern California in 1986, and again in 1997, caused record flood flows in the American River watershed. Outflows from Folsom Dam, together with high flows in the Sacramento River, caused the river stages to exceed the designed safety margin of levees protecting the City of Sacramento. If these storms had lasted much longer, major sections of the levee would likely have failed, causing probable loss of human life and billions of dollars in damages.

The effects of the 1986 and 1997 storms raised concerns over the adequacy of the existing flood risk management system. This led to a series of investigations on the need to provide additional protection for the Sacramento metropolitan area. The results of these investigations led to authorization of several flood risk management projects in the American River watershed, including the Folsom Dam Raise Project.

With the construction of the Joint Federal Project, the current storage capacity of the reservoir allows for passing the PMF. However, the current crest elevation of the reservoir dikes and embankment dams would not provide sufficient freeboard to meet design criteria for resisting wave height and wave run-up[2]. A large enough flood event could cause the current dikes and/or

[2] Wave run-up is the maximum vertical extent of wave uprush on a beach or structure above the still water level.

embankment dams to sustain enough damage as to cause failure or overtop.

Objectives

The 2007 EIS/EIR included five CEQA project objectives. The objectives were:

1) Expeditiously reduce hydrologic (flooding) risk of overtopping-related failure of any retention structure during a PMF event in accordance with Reclamation's Public Protection Guidelines;
2) Expeditiously reduce the risk of structural failure of any retention structure during a potential seismic (earthquake) event in accordance with Reclamation's Public Protection Guidelines;
3) Expeditiously reduce the risk of structural failure of any retention structure during a potential static (seepage) event in accordance with Reclamation's Public Protection Guidelines;
4) Expeditiously improve the security infrastructure at the Folsom Facility in accordance with Reclamation's Public Protection Guidelines; and
5) Expeditiously improve the flood management capacity of the facilities in a manner functionally equivalent to the Corps authorized projects.

The Folsom Dam Raise Modifications Project would include actions to meet objectives 1 and 5.

1.5 Purpose of the DSEIS/EIR

Construction of the Folsom Dam Raise Modifications project is considered to be a major Federal and State project subject to compliance with NEPA and California Environmental Quality Act (CEQA), respectively. Because the proposed action has the potential to significantly affect the quality of the human environment, the USACE and the Central Valley Flood Protection Board (CVFPB) through the California Department of Water Resources (DWR) have prepared this joint DSEIS/EIR to satisfy the environmental evaluation and review requirements of these two laws.

This DSEIS/EIR: (1) describes the further development and/or refinement or changes to the design and features of the alternatives; (2) discusses the environmental resources in the local and regional project areas; (3) evaluates the direct, indirect, and cumulative effects and significance of the alternatives on these resources, and; (4) proposes best management practices and mitigation measures (MM) to avoid or reduce any effects to less than significant, when possible. The type and extent of any effects that cannot be reduced to less than significant are identified so that decision-makers can consider the trade-offs of implementing the proposed action.

1.5.1 National Environmental Policy Act

NEPA provides an interdisciplinary framework for Federal agencies to develop information that would help them to take environmental factors into account in their decision-making (42 U.S.C. § 4321 *et seq*. and 40 C.F.R. § 1500.1 *et seq.*). To comply with NEPA, an EIS is required whenever a proposed major Federal action may result in significant effects on the quality of the natural and human environment (42 U.S.C. § 4332((2)(C); 40 C.F.R. § 1501.3(a)). Additionally, in accordance with 40 C.F.R. § 1502.9(d), the Federal agency must prepare a supplement to either draft or final EIS documents when relevant, substantial changes in the proposed action occur or significant new circumstances or information relevant to environmental concerns are realized.

It is noted that under NEPA, the term "mitigation" is very broad and includes: avoidance

measures (avoiding an impact completely); minimization measures (reducing or limiting the degree or magnitude of an impact); measures to rectify an impact (by restoring, rehabilitating, or repairing the affected environment), and; measures to reduce or eliminate an impact over time (by preservation and maintenance operations during the life of a proposed project or action). As used in this DSEIS/EIR, the term mitigation is sometimes used in a broad way in that it refers to measures to avoid impacts, minimize impacts, or compensate for unavoidable impacts that cannot be further minimized. However, it is also common to separately mention avoidance, minimization, and mitigation measures. In such cases, mitigation measures frequently refer to proposed activities that serve to compensate for unavoidable adverse impacts; for example, purchasing credits from a conservation bank or restoring oak woodland habitat. When addressing the proposed project (the preferred alternative) this DSEIS/EIR attempts to set forth all practicable measures (activities) that would help avoid adverse impacts altogether, help minimize unavoidable adverse impacts, and, when necessary, compensate (mitigate) for unavoidable adverse impacts that cannot be further minimized.

1.5.2 California Environmental Quality Act

According to the State CEQA Guidelines (14 CCR Section 15064(f)(1)), preparation of an EIR is required whenever a project may result in a significant environmental impact. An EIR is an information document used to inform public agency decision makers and the general public of the significant environmental effects of a project; identify possible ways to mitigate, reduce, or avoid the significant effects; and describe a range of reasonable alternatives to the project that can feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project. The USACE and the CVFPB intend to use this DSEIS/EIR in their decision making (per 15124(d)(1)(A)).

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

Permits and approvals required to implement the project can be found in Chapter 5 of this document, along with consultation requirements mandated by federal, state, or local laws, regulations, or policies.

1.6 Related Documents and Resources Relied on in Preparation of the DSEIS/EIR

In 2002, the USACE, along with the CVFPB and SAFCA, completed the American River Watershed Long-Term Study Final Supplemental Plan Formulation Report EIS/EIR (LTS EIS/EIR), which analyzed the environmental impacts of a 7-foot dam raise. There was no Record of Decision (ROD) for this analysis. In 2007, the Folsom Dam Raise was reevaluated in the PACR and the associated Folsom Dam Safety/Flood Damage Reduction EIS/EIR (Reclamation, 2007), which

recommended the replacement of the three emergency spillway gates and a 3.5-foot raise, as well as various other Folsom projects.

Although the environmental analysis of the Folsom Dam Raise is generally covered in the 2007 EIS/EIR, it was not fully designed at that time and a complete environmental analysis was not completed. Additionally, the project was not covered by the 2007 ROD. The PACR states "It is important to note that the effects associated with the authorized USACE projects (Folsom Modification and Folsom Dam Raise projects) are the impacts identified in the original environmental documents for those projects, and impacts are not updated to a current assessment." Therefore, the majority of the Folsom Dam Raise analysis in the 2007 EIS/EIR is based on the 2002 LTS EIS/EIR and the description, evaluation, and analysis are outdated and incomplete. A 2017 SEIS/EIR was prepared to fully disclose revised project alternatives and updated project-related effects. The design plans for MIAD, LWD & RWD, and Dikes 1-7 were not close to completion by the 2017 SEIS/EIR publish date and in June of 2020 the project was reevaluated by a Change Control Board. Consequently, an additional environmental document was needed to disclose new components and measures being proposed for the project and subsequent changes to the mitigation plan. The current DSEIS/EIR is being prepared to fully disclose revised project alternatives and updated project-related effects.

1.7 Significant Issues

Significant issues identified as areas of controversy by agencies and the public related to construction of the 3.5-foot dam raise, the spillway gate modifications, and related features are summarized below. These issues were based on preliminary studies and comments from formal and informal agency meetings, workshops, public meetings, telephone discourse, letters, and emails associated with the 2017 SEIS/EIR.

- Construction is expected to temporarily increase noise levels, affecting local recreationists and adjacent residents, even under circumstances of compliance with the City of Folsom noise ordinances.

- Construction is expected to result in temporary but significant degradation of recreational experiences in and adjacent to the project area. Noise, visual aesthetics, and access would be compromised during construction years 2022 to 2025.

- Both the public and various agencies indicated a greater interest and concern about how Folsom Dam and the JFP auxiliary spillway would be operated following completion of the Folsom Dam Raise Modifications project, compared to their concerns regarding construction of the Folsom Dam Raise Modifications project itself.

1.8 Application of NEPA and CEQA Principles and Terminology

NEPA and CEQA are similar in that both laws require the preparation of an environmental study to evaluate the environmental effects of proposed activities. However, there are several differences between the two regarding terminology, procedures, content of documents, and substantive mandates to protect the environment. NEPA language is primarily used in this document

but can be interchanged with CEQA language. The Executive Summary includes CEQA language as that section is a CEQA requirement. In some cases in this document, both NEPA and CEQA terminology are used, as in Chapter 1 where the project purpose, need, and project objectives are discussed. Table 1-1 compares general terminology of NEPA and CEQA for common concepts.

Table 1-1. Comparison of general NEPA and CEQA terminology.

NEPA Term	Correlating CEQA Term
Lead agency	Lead agency
Cooperating agency	Responsible agency
Environmental Impact Statement	Environmental Impact Report
Record of Decision	Notice of Determination
Preferred alternative	Proposed project
Project purpose	Project objectives
No Action alternative	No Project alternative
Affected environment	Environmental setting
Effect/Impact	Impact

1.9 Organization of the DSEIS/EIR

The content and format of this DSEIS/EIR is designed to meet the requirements of NEPA as set forth by the CEQ and the USACE NEPA policy and guidance, and by the CEQA and the State CEQA Guidelines. The DSEIS/EIR is organized as follows:

- The Executive Summary abridges the purpose and intended uses of the DSEIS/EIR, lead agencies, project location, project background and phasing, need for action, and project purpose/objectives. It presents an overview of the proposed alternatives under consideration, as well as the major conclusions of the environmental analysis while documenting the known areas of controversy and issues to be resolved. It includes a brief summary of the proposed project's potential environmental impacts, a significance determination concerning these impacts, and a table that identifies all proposed mitigation measures and related environmental commitments.

- Chapter 1 explains the NEPA and CEQA processes; lists the lead, cooperating, and responsible agencies that may have discretionary authority over the project, including NFS; specifies the underlying project purpose/objectives and need for action that the lead agencies are responding to in considering the proposed project and project alternatives; and outlines the organization of the document.

- Chapter 2 presents the proposed alternatives under consideration. This chapter constitutes the project description and describes the components for each action alternative as well as the No Action Alternative. This chapter also describes alternatives considered but eliminated from further consideration and provides a summary matrix that compares the environmental consequences of the alternatives under consideration.

- Chapter 3 describes the baseline or existing environmental and regulatory conditions. It provides an analysis of the impacts of each alternative under consideration and identifies

mitigation measures that would avoid/reduce/eliminate significant impacts to less-than-significant levels, where feasible. In addition, compensatory mitigation is discussed for significant, adverse effects that cannot be reduced to a less than significant level.

- Chapter 4 describes the cumulative impacts of the project when combined with other past, present, and reasonably foreseeable future projects within the study area. In addition, it analyzes the growth-inducing impacts of the proposed action. The remainder of the chapter includes the requirements of CEQA that are not addressed elsewhere in this DSEIS/EIR such as the relationship between short-term uses of the environment and long-term productivity, significant and unavoidable environmental impacts, and irreversible and irretrievable commitments of resources. It should be noted that Chapter 4 only satisfies CEQA requirements as analysis of cumulative impacts is not required for NEPA.

- Chapter 5 summarizes Federal and State laws and regulations that apply to the project and describes the project's compliance with them, and summarizes required permits, approvals, and authorizations.

- Chapter 6 summarizes public involvement activities under NEPA and CEQA; Native American consultation; and coordination with other Federal, state, regional, and local agencies. A list of elected officials and representatives as well as government departments and agencies receiving a copy and/or notice of this DSEIS/EIR is also included.

- Chapter 7 lists the various people who were involved in preparing this document.

- Chapter 8 provides a bibliography of sources cited in this DSEIS/EIR.

- Appendices contain a table and background information that supports this DSEIS/EIR.

CHAPTER 2.0 - ALTERNATIVES

2.1 Introduction

The Folsom Dam Raise Modifications project plan formulation process is discussed in Chapter 4.0 of the 2002 Long Term Study, Plan Formulation and Screening of the Flood Damage Reduction Measures, in Chapter 5.0 of the Flood Control Alternatives, and in Chapter 6.0 of the Ecosystem Restoration for Flood Plain and Fisheries Resources.

2.1.1 Alternative Formulation and Screening

See section 2.1.1 of the 2017 SEIS/EIR for the discussion of the 2002 American River Watershed Long-Term Study and the 2007 American River Watershed Post Authorization Change Report.

Future without Project Conditions

The future without project condition would be the most likely condition expected to exist in

the future without the proposed activities including the construction of a new Dike 3, 3.5-foot concrete floodwall raises (Dikes 1, 4-7, and MIAD), onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, and a project mitigation plan. While the alternatives considered in this DSEIS/EIR must be compared to existing conditions, the future without project condition constitutes the benchmark against which these alternatives must be compared for Federal planning purposes. Other adopted plans in the planning area and local planning efforts with high potential for implementation or adoption are considered as part of the forecasted without project condition. Under the future without project condition, activities including the construction of a new Dike 3, 3.5-foot concrete floodwall raises (Dikes 1, 4-7, and MIAD), onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, and a project mitigation plan would not be implemented, nor would the associated improved flood risk management benefits be possible for Dike 3. A separate NEPA/CEQA document would be required to perform the mitigation for impacts to native habitat.

Under the future without project condition, construction activities to complete the Folsom Dam Raise Modifications Project would not occur. As discussed in Chapter 3, these construction activities would result in temporary adverse impacts to various elements of the human environment including recreation, vegetation, wildlife, listed animal species, air quality, aesthetics/visual resources, noise, water quality, and Waters of the United States. There would be similar impacts under the future without project condition since the Folsom Dam Raise Modifications project would be built per the 2017 SEIS/EIR (USACE). Under this scenario, it is likely that future construction activities would be necessary to perform general maintenance of the existing Dike 3 and such work would result in some temporary adverse impacts to the human environment. However, it is not possible to estimate the magnitude and intensity of these future effects or when they might occur. A mitigation plan would still need to be developed to mitigate for impacts to native habitat due to construction of the Folsom Dam Raise Modifications Project as described in the 2017 SEIS/EIR.

Completion of the Folsom Dam Raise Modifications Project is a prerequisite for modifying the WCM for Folsom Dam to take advantage of the additional reservoir (Folsom Lake) surcharge volume that would be provided by the Folsom Dam Raise project. The WCM would be modified in the future to account for this new surcharge space in order to accomplish the stated goal of the Folsom Dam Raise Project, i.e., flood risk reduction. If the Folsom Dam Raise Modifications Project is not constructed (the future without project condition), then it would also not be possible to revise the WCM in a manner that further reduces downstream flood risks. Without this reduction in flood risk, significant loss of life is expected with a great enough flood event, prolonged outflows at the 160,000 cubic feet per second (cfs) threshold for more infrequent events exceeding a 1/240-year storm event, as well as injuries, illnesses, and the release of hazardous and toxic contaminants to the downstream floodplain. Post-flood debris clean-up, repairs, and recovery could be a major undertaking. Additionally, infrastructure, such as transportation corridors and power and water supplies, would be incapacitated. The economic impact of the restricted movement of people and goods across the region, the emergency costs associated with evacuation, and all the emergency services associated with such an event could result in billions of dollars in damages.

The following general assumptions have been made in regard to the future without project condition for this study:

- In 2018, the JFP auxiliary spillway at Folsom Dam was completed. A WCM update that accounts for the new auxiliary spillway (Folsom JFP) was approved in June 2019, supported

by a joint supplemental EA/EIR with separate FONSI and NOD signed 24 April 2019 and 22 Jan 2019, respectively. The WCM Update included adoption of 400,000 acre-feet to 600,000 acre-feet (400/600) variable flood space and utilizes forecast information generated by the National Weather Service's California-Nevada River Forecast Center (CNRFC) to guide flood operations at Folsom. This information is used for two purposes: 1) to compute a forecast-based Top of Conservation (TOC) pool elevation during the portion of the year in which variable flood space is in effect, and 2) if the reservoir is encroached above the forecast-based TOC, to compute the required release. The effect of this approach is to initiate releases greater than inflow in advance of the main wave(s) of the event. The JFP allows dam operators to release larger quantities of water at lower reservoir stages and more efficiently utilize flood space in the reservoir. Operation of the JFP is to some degree dependent on the American River levees downstream of the dam being able to safely pass the objective release of 160,000 cfs. At the time of the 2007 PACR, assumptions were made based on the available information that the downstream improvements authorized by WRDA 1996 and 1999 would be in place and allow for the safe passage of the objective releases identified in the 2007 PACR. However, as noted in the 2007 PACR, an erosion study of the downstream channel was needed to provide more information on this subject. Results of this erosion study identified the need for additional erosion protection.

- The levee modifications recommended in the 2010 Natomas Post Authorization Change Report (PACR) and authorized by WRDA 2014 (Pub. L. No 113-121) are assumed to be in place, which improve the levees surrounding the Natomas Basin but do not include levee raises to address higher volume, low frequency flows.

- The elements of the American River Common Features project, as authorized by WRDA 1996 and WRDA 1999, are assumed to be in place. These features addressed the levee seepage and stability concerns along the American River but do not address the erosion risk.

- The Folsom Dam Raise Modifications Project would be constructed as described in the 2017 SEIS/EIR. A mitigation plan, which would need to be analyzed in a separate NEPA/CEQA document, would be developed and executed to adhere to the conditions of consultations and coordination with USFWS.

2.1.2 Measures and Alternatives Considered but Eliminated

Some measures originally identified that could contribute to addressing the overall Folsom Dam Raise project were reviewed and dropped from further consideration. These measures are described in section 2.1.2 of the 2017 SEIS/EIR. For this DSEIS/EIR, only those measures that were identified as affecting the construction of a new Dike 3, modified concrete floodwalls elements, onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, and a project mitigation plan are addressed here.

2.1.2.1 Raise of Existing Dike 3

Raising the existing Dike 3 was rejected and building an entirely new Dike 3 was selected for design because the design team could not identify a portion of the existing Dike 3 on which a reliable

new and raised dam embankment could be built. The design team concluded that Dike 3 was unreliable because of significant vegetation growth on the dike and because the current topography did not match record drawings, suggesting undocumented modifications may have occurred.

2.1.2.2 Onsite Borrow and Disposal at Locations Other Than MIAD West

Many other sites in and around the near-shore areas of Folsom Lake were considered for borrow and disposal. However, these alternative sites were eliminated due to the possibility of environmental or cultural impact, lack of adequate type or amount of material, and recreational impacts.

2.1.2.3 Hauling MIAD East Riprap Stockpile Offsite

An agreement was made between the Bureau of Reclamation and USACE that the riprap stockpile at MIAD East would either be used as material for the Folsom Dam Raise or would be hauled off-site at the completion of the Folsom Dam Raise. Since the material is useable for the Folsom Dam Raise Modifications project if processed, it was deemed more economical to use the existing material than to import new material and haul the riprap stockpile offsite.

2.1.2.4 Delaying Project Mitigation Plan

Addressing mitigation in a separate document was considered but deemed inefficient and more costly than addressing these issues in this DSEIS/EIR.

2.1.2.5 Earthen Raise of Dike 1, Dikes 4-7, and MIAD

The 3.5-foot earthen raises of Dike 1, Dikes 4-6, and MIAD would incur higher project costs and higher air quality impacts (and associated mitigation costs) compared to concrete floodwalls. If the project were to proceed with earthen raises as described in the 2017 SEIS/EIR, the result would be greater environmental impacts.

2.2 Alternative 1: No Action Alternative

A No Action Alternative is required pursuant to NEPA, and a No Project Alternative is required for CEQA (for consistency in this DSEIS/EIR, it is referred to as the No Action Alternative). The No Action Alternative constitutes the future without project conditions that would reasonably be expected in the absence of the proposed action and serves as the environmental baseline, per NEPA, against which the effects and benefits of the action alternatives are evaluated. The environmental baseline for CEQA is assumed to be the existing conditions.

Under the No Action Alternative, the Federal government would not implement the construction of a new Dike 3, the concrete floodwall raises of Dikes 1, 4-7 and MIAD, onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, nor a project mitigation plan.

Under the No Action Alternative, with a structurally unsound earthen raise of the existing Dike 3, a significant loss of life is expected with a great enough flood event (or PMF), as well as injuries, illnesses, and the release of hazardous and toxic contaminants to the downstream floodplain.

The urban areas downstream of Dike 3 would continue to be at risk of flooding, and lives would continue to be threatened. If a failure of Dike 3 were to occur, major government facilities and transportation corridors would be impacted until flood waters recede. A temporary shut down or slowing of State and Local government functions would occur, and workers would be unable to perform their duties until the buildings are restored and can once again be occupied.

Dike 2, RWD, and LWD construction is generally the same as previously reported in the 2017 SEIS/EIR, Section 2.3. The design is generally the same, refinements to the design can be seen in Section 2.3. Any refinements to other elements such as haul routes, access routes, and staging areas for Dikes 1, 2, and 3, RWD, and LWD are described in Section 2.3.6.

2.3 Alternative 2: Construction of a New Dike 3, Concrete Floodwall Raises (Dikes 1 and 4-7 and MIAD), Onsite Borrow and Disposal at MIAD West, Rock Crushing Operations at MIAD East, and Project Mitigation Plan (Proposed Project/Proposed Action, Environmentally Preferable Alternative)

Alternative 2, the proposed project and preferred alternative, would consist of various activities including the construction of a new Dike 3, 3.5-foot concrete floodwall raises (Dikes 1, 4-7, and MIAD), onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, and a project mitigation plan. Proposed construction elements for Alternative 2 are discussed below.

Additionally, the plan for construction of the Main Dam Tainter Gates, and the 3.5-foot earthen raises of Dikes 2, and the concrete floodwall raises of the RWD and LWD are relatively the same as the description in the 2017 SEIS/EIR with minor exceptions, such as modifications to the APE. Those minor changes are incorporated into this DSEIS/EIR.

O&M requirements for the elements constructed as part of Alternative 2 would initially remain as described in the current O&M manual and WCM. This is the condition evaluated in this DSEIS/EIR. However, the raise would increase the flood storage capacity of the dam and reservoir up to elevation 486.34 feet (NAVD88) and would increase the flexibility of the discharge mechanisms of the Folsom Dam and its associated facilities, including the ability to sustain increased flows of 160,000 cfs for a longer period of time. New operation rules that would utilize the operational flexibilities provided by the dam raise would require an update to Water Control Manual (WCM). Any flood risk management operation changes required to implement the Folsom Dam Raise Project will be analyzed in detail in a subsequent WCM Update and accompanying environmental document when proposed changes to operation rules have been developed to a sufficient level of detail to be evaluated.

2.3.1 New Dike 3 Construction

The design plan for Dike 3 includes the construction of a new embankment 80 feet closer to the lake compared to the existing Dike 3 (Figure 2-1 and Figure 2-2). The existing Dike 3 was determined to be unreliable because the existing dike contains woody vegetation and possibly areas of undocumented fill. Constructing a new Dike 3 would provide reliable flood protection for the area using similar materials to the other dikes, extending it approximately 150 feet, and it would be 3.5 feet higher than the existing Dike 3. This design plan was not assessed in the 2017 SEIS/EIR. The design plan at that time called for modifications to the existing crest and upstream side slope in manner

similar to the modifications to Dike 2. Other design alternatives were rejected because they did not meet the needs for recreation, would adversely impact utilities and the public, or cause uncertainty in building on an unreliable dike. A new access turnout, surfaced with aggregate base, would connect the south end of modified Dike 2 and the north end of the new Dike 3 to the existing paved road between existing Dikes 2 and 3. The new Dike 3 location and elevation would require a new vertical alignment to cross over the new Dike 3 for lakeside parking access. The roadway would be replaced in-kind, reconstructed along the existing alignment with embankment fill to transition over the new Dike 3.

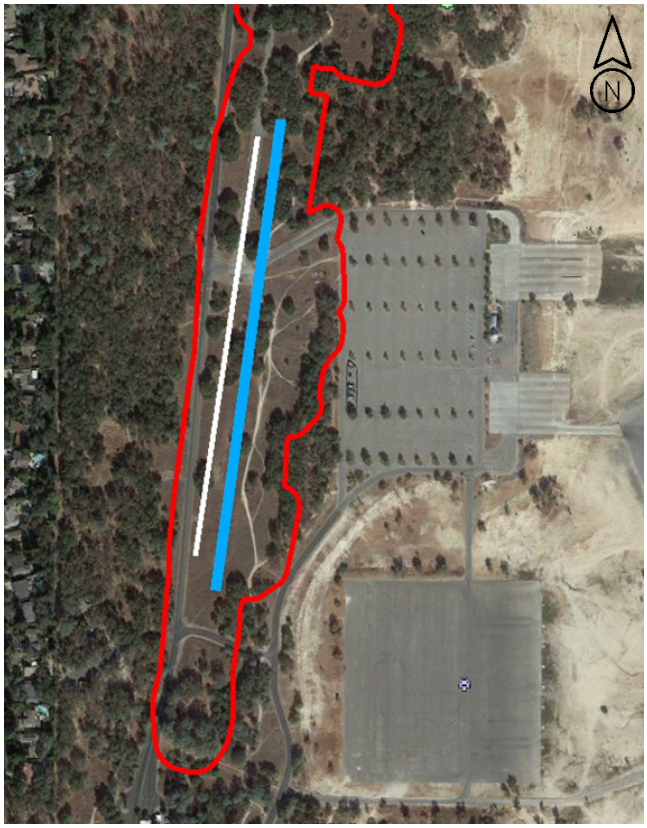

Figure 2-1. Existing Dike 3 Centerline (White), Proposed New Dike 3 Centerline (Blue and 80ft closer to Folsom Lake), and the Area of Potential Effects (Red).

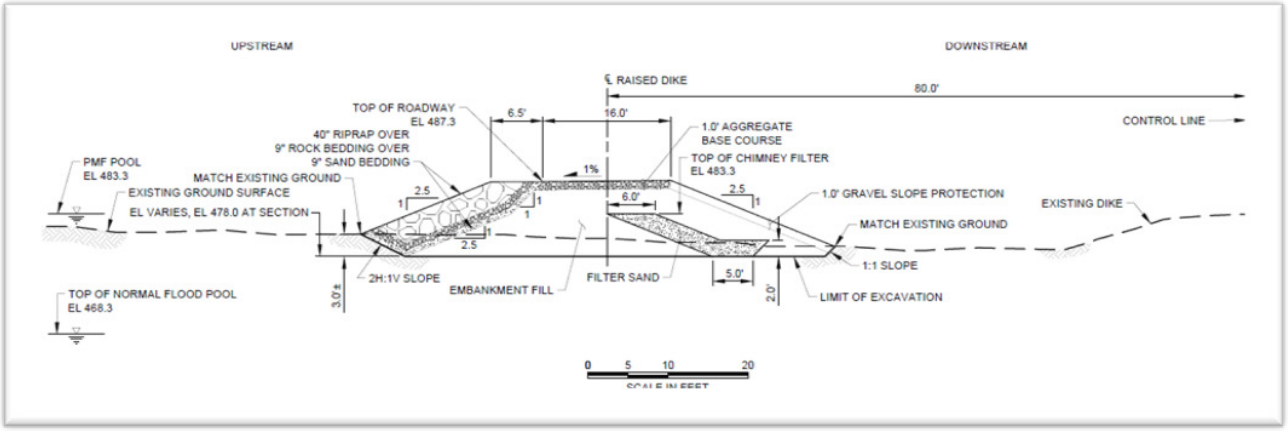

Figure 2-2. Preliminary typical cross section for the new earthen Dike 3 (3.5-feet higher than the existing Dike 3).

2.3.2 Modified Concrete Floodwall Elements

Dike 2 is to remain an earthen raise (Figure 2-3) and the RWD and LWD would remain concrete floodwall raises of 3.5 feet (Figure 2-4) as described in the 2017 SEIS/EIR. However, differing from the 2017 SEIS/EIR, the current design would provide flood protection for Dike 1, Dikes 4-7 (Figure 2-5 and Figure 2-6), and MIAD (Figure 2-7) to elevation 486.34 feet (a 3.5-foot raise) by placing a concrete floodwall along the upstream (water) side of the crest. The upstream and downstream fill slopes will match the existing respective fill slopes. The fill placed on the crest would only be placed on the existing crest (i.e., does not continue down the slope on the water or land side). The crest widths vary based on the existing crest widths and the space available after the concrete wall is placed. Additionally, the concrete floodwall designs vary at each site to account for differences in loading projected for flooding events at each site.

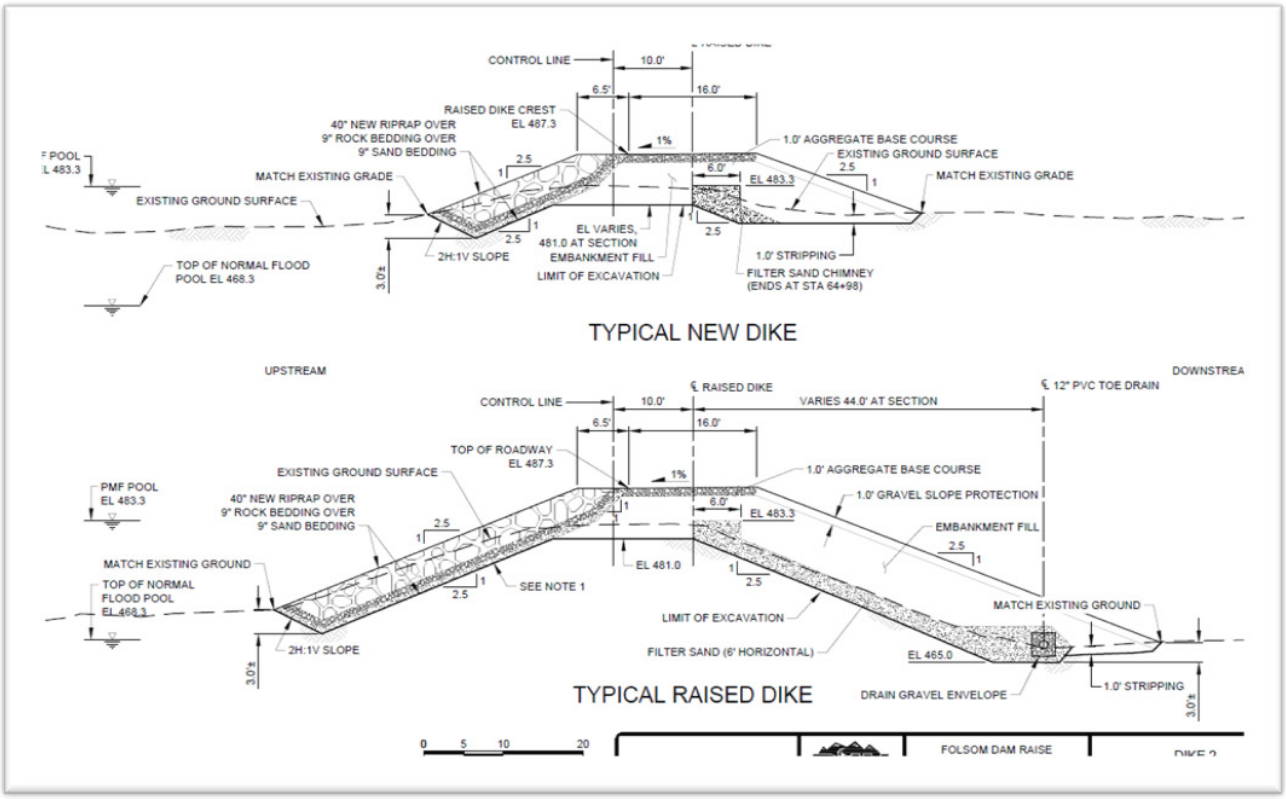

Figure 2-3. Preliminary typical cross sections for 3.5-foot earthen raise at Dike 2.

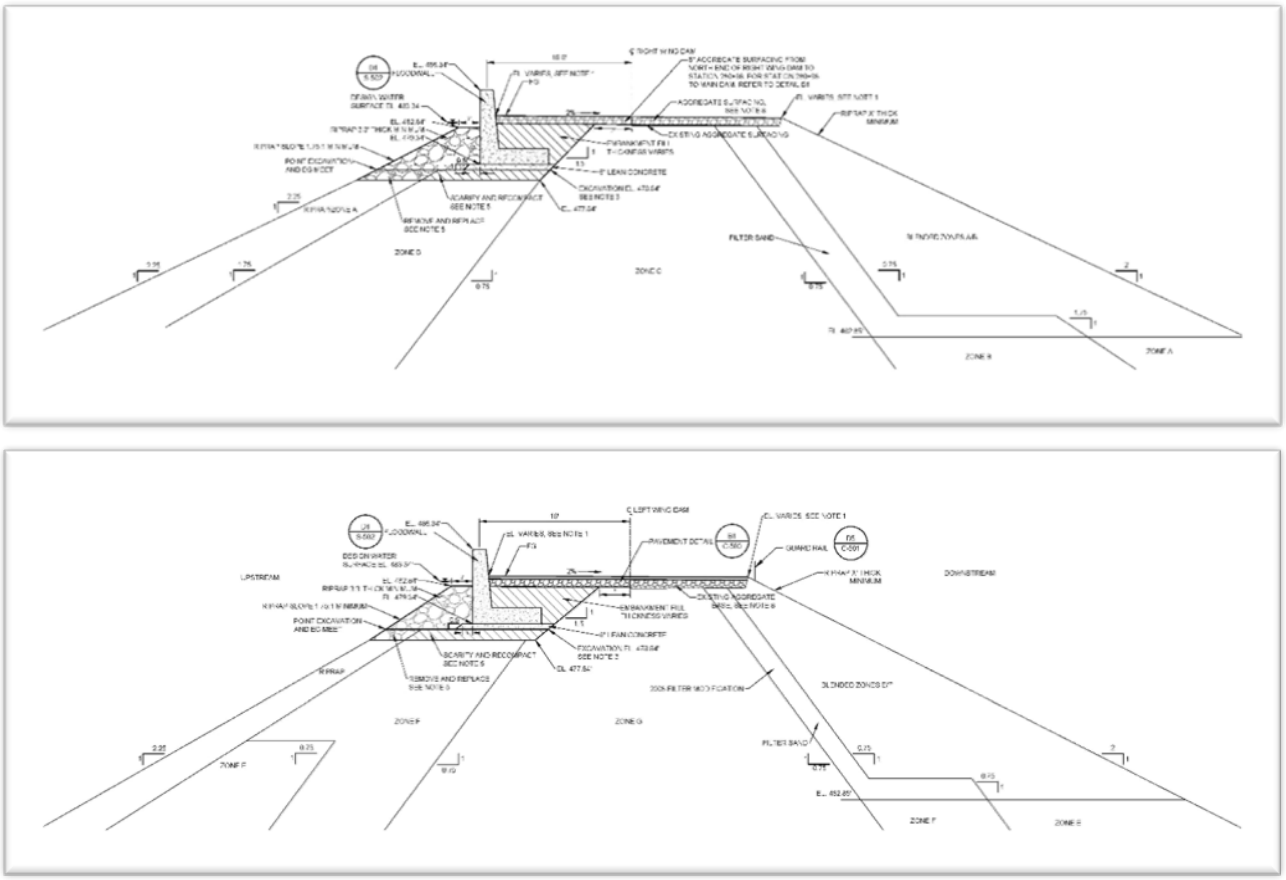

Figure 2-4. Preliminary typical cross sections for the concrete floodwall raise at the Right-Wing Dam (RWD - top) and the Left Wing Dam (LWD - bottom).

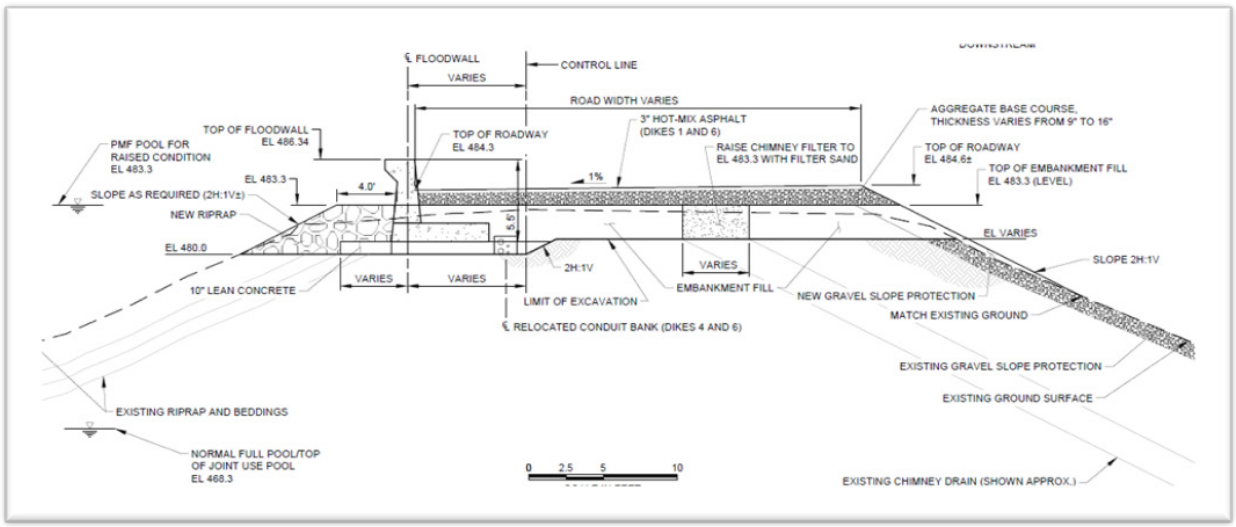

Figure 2-5. Preliminary typical cross section for the concrete floodwalls raises at Dikes 1, 4, 5, and 6.

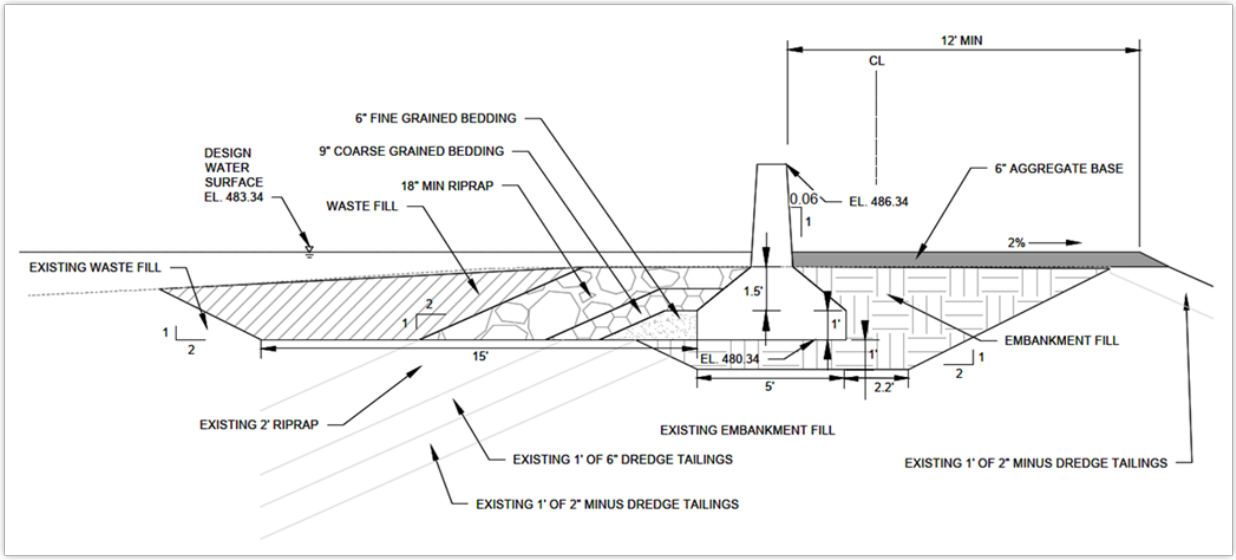

Figure 2-6. Preliminary typical cross section for concrete floodwall raise of Dike 7.

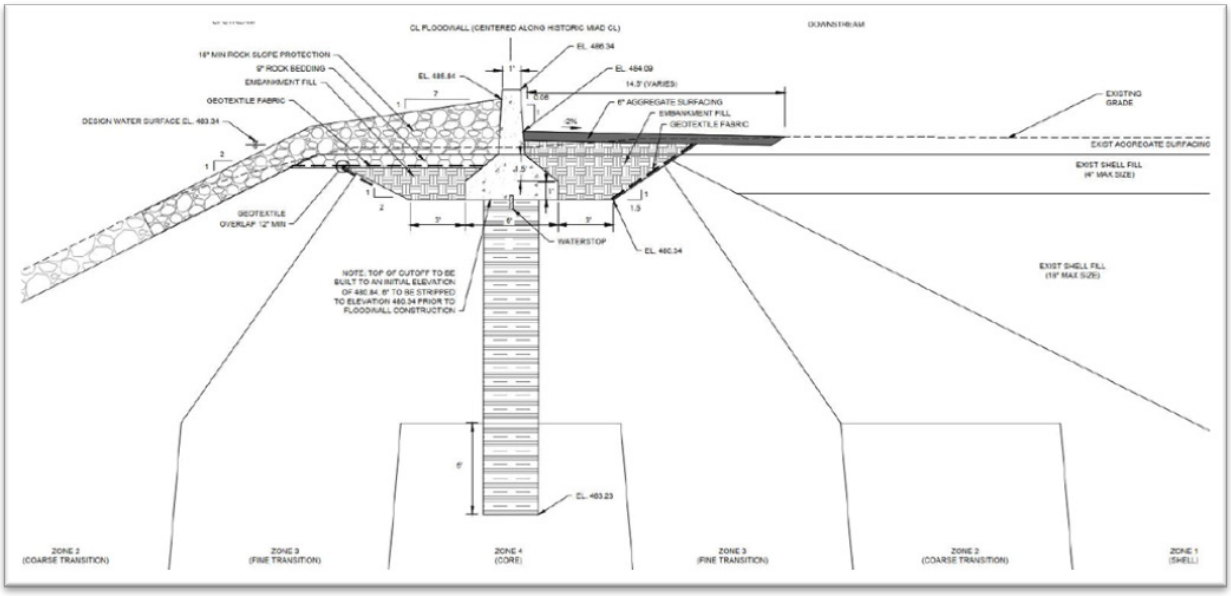

Figure 2-7. Preliminary typical cross section for concrete floodwall raise at the Mormon Island Auxiliary Dam (MIAD).

2.3.3 Onsite Borrow and Disposal at MIAD West

The area referred to as MIAD West is located south of Folsom Point and north of Cummings Way (Figure 2-8). MIAD West is an area that consists primarily of materials deposited from previous construction in the Folsom Lake area. It is proposed that material from MIAD West would be used for various aspects of the 3.5-foot Folsom Dam Raise Modifications project. Additionally, uncontaminated disposal materials from various aspects of the Folsom Dam Raise Modifications Project would be deposited at MIAD West to maintain a similar topography and drainage patterns. Oak plantings at MIAD West that may be disturbed by borrow and disposal operations would be replaced at a 1:1 ratio in the proposed onsite mitigation areas (see Section 2.3.5 below). Upon

completion of borrow, disposal, and topographic contouring operations at MIAD West, restoration would consist of planting the area with a mixture of native grasses and forbs as per the restoration requirements described in Table 2-4 in Appendix A.

Figure 2-8. Area of Potential Effects of Proposed Borrow/Disposal Site at MIAD West (Red), Haul Route (Green), and Adjacent Wetland (Blue). Folsom Point Road and Boat Ramp are in the upper left.

2.3.4 Rock Crushing Operations at MIAD East

The riprap stockpile at MIAD East is located just south of the western side of the MIAD (Figure 2-9). The 2017 SEIS/EIR stated that the MIAD East riprap stockpile must be used in the Folsom Dam Raise or the rock must be hauled offsite before the completion of the Folsom Dam Raise project. Rock crushing and sorting operations at MIAD East would facilitate the processing of the riprap stockpile to meet the material size requirements for various aspects of the Folsom Dam Raise Modifications project. These materials may be used for any aspect of the Folsom Dam Raise Modifications project. Once the riprap stockpile and all associated rock crushing equipment has been removed from MIAD East, restoration would consist of planting the area with a mixture of native grasses and forbs as per the restoration requirements described in Table 2-4 in Appendix A. Water pumped from Folsom Lake may be used to wash the crushed rocks.

Figure 2-9. MIAD East Riprap Stockpile (White), Proposed Area of Potential Effects (Red) Haul Route (Green), and Adjacent Wetland (Blue).

2.3.5 Project Mitigation Plan

One of the purposes of this DSEIS/EIR is to define the anticipated mitigation requirements. Offsite mitigation will most likely be used for any impacted wetlands and elderberry shrubs (which provide habitat for the endangered Valley Elderberry Longhorn Beetle or VELB) as those impacts are expected to be minor. Any impacted elderberry shrub would be transplanted to a commercial mitigation bank within the service area as per U.S. Fish and Wildlife Service (USFWS) guidance. However, none of the elderberry shrubs within the project boundaries are expected to require transplantation at this time. Impacts to wetlands would be mitigated by payments to commercial mitigation banks in the service area. At this time, the only expected wetland impact is the replacement of the culvert under Old Country Road north of Dike 1 and the haul route at the toe of Dike 1 on the water side.

Trees removed for construction are estimated to require planting approximately 23.6 acres oak woodland habitat for mitigation. This includes trees that have been removed for the construction of Dike 8, trees that are anticipated to be removed for clearing material stockpile and staging areas and the construction of Dikes 1-7, RWD, LWD, and MIAD, and any oak plantings disturbed at the MIAD West borrow site. These impacts would be mitigated by planting native oaks at 10 separate locations within the Folsom Lake State Recreation Area (FLSRA) (figures are available in Section 3.3.2). The acreage for all proposed oak planting sites equates to 23.6 acres plus an additional 1.2 acres (to account for the fact that a road, trails, and a few existing trees and shrubs are found within the proposed planting sites where trees would not be planted) for total of approximately 24.8 acres of oak tree plantings. If any additional acreage for oak plantings is needed beyond the on-site locations

mentioned, either additional onsite planting areas would be identified, or credits would be purchased from a mitigation bank within the service area.

2.3.6 Construction Details

Dike 2, RWD, and LWD construction is generally the same as previously reported in the 2017 SEIS/EIR, Section 2.3. The design is generally the same, refinements to the design can be seen below. Any refinements to other elements such as haul routes, access routes, and staging areas for Dikes 1, 2, and 3, RWD, and LWD are described below.

Dike 1 and Dikes 4-7 Concrete Floodwall Construction

Flood protection would be provided for Dikes 1, 4, 5, 6, and 7 to elevation 486.34 feet, a 3.5-foot raise, by placing concrete floodwalls along the upstream (lake side) of the crests. See Figure 2-5 for the preliminary typical cross section for the concrete floodwalls raise at Dikes 1, 4, 5, and 6. A new roadway, with a minimum crest elevation of 484.3 feet, would be constructed downstream of the floodwalls. See Table 2-1 for a summary of the widths of the roadway and surfacing requirements for the four dikes.

Table 2-1. Anticipated crest widths and surfacing for Dikes 1 & 4-6.

Dike #	Raised Dike Crest Width (ft)	Crest Roadway Surfacing
1	30	Asphalt pavement over aggregate base course
4	30	Aggregate base course
5	22	Aggregate Base Course
6	22	Asphalt pavement over aggregate base course

Downstream side of the levee embankment and the crests of Dikes 1, 4, 5, 6, and 7 would be raised with embankment fill to elevation 483.3 feet. Upstream of the concrete floodwalls, the upstream slopes of the existing dikes would be excavated to elevation 480.0 feet to accommodate a larger size of new riprap. The upstream slopes would be reconstructed with a 4-foot bench at elevation 483.3 feet, with a 2 horizontal:1 vertical (2H:1V) side slope. The foundation subgrade under the floodwalls would be proof-rolled, and then covered with a 10-inch-thick lean concrete pad, which has two functions: 1) To cover the sand bedding in the existing embankment, so that new bedding will not be needed under the new riprap; and 2) to provide a firm uniform base for the new floodwall. The top of the lean concrete would be treated as a construction joint prior to wall placement. In addition, it is proposed that a control crack in the lean concrete under the upstream heel of the floodwall be used so that wall loads are not transmitted to the existing sand bedding, which is believed to be not as firm as the existing dike fill.

The existing dike crests downstream of the floodwalls would be stripped to remove the existing surfacing materials, and then raised to elevation 483.3 feet with new embankment fill. A one-foot-thick roadway would be placed above the embankment fill to minimum elevation of 484.3 feet. The existing filter chimney in each dike would be raised to 483.3 feet; the raised chimney filter would have an approximate width of 6 feet to match the existing horizontal width of the filters. The raised downstream slopes of the dikes would be sloped at 2H:1V and surfaced with a new gravel slope protection to match the existing gravel slope protection.

The new concrete floodwalls would be keyed into the dike abutments. The upstream side of the abutment wall would be backfilled with clayey embankment fill and protected with new riprap and two layers of beddings. The crest access roads at each abutment would be transitioned into existing roadways.

The general design concept for Dike 1 is a partially embedded concrete floodwall just downstream from upstream slope. The crest of the floodwall would be at elevation 486.34 feet. The crest downstream of the floodwall would be raised from a nominal elevation 482.84 feet to elevation 483.3 feet. Above the nominal raised crest elevation, an asphalt-paved road would be constructed to restore Park Road. The crest (i.e., top of road surface) would be 32 feet wide along the entire length of the dike. For the portion of new dike above elevation 482.84 feet, the existing chimney drain would be exposed, cleaned of embankment fill, and new filter material would be extended up to elevation 483.4 feet. The existing Dike 1 would be extended longitudinally about 25 feet beyond the existing right abutment and about 415 feet beyond the existing left abutment. These new portions of the dike would extend the chimney drain laterally about 500 feet on the left side of the dike. Below the new abutment sections of Dike 1, there would be an excavation to elevation 480.0 feet into the existing embankment, which would be connected to and continuous with the foundation excavation along the upstream toe of the existing dike. This zone of foundation excavation would be backfilled with compacted embankment fill. Additional foundation treatment to control seepage (i.e., grout curtains, cutoff walls, etc.) is not needed due to the low head and anticipated foundation conditions. Upstream slope protection would extend from the limit of excavation to elevation 483.3 feet and would consist of riprap placed on two layers of riprap bedding. The crest of the raised dike would have a 1 percent cross-slope in the upstream direction for surface drainage.

New Dike 3 Construction

The design for Dike 3 consists of an entirely new embankment with the centerline located approximately 80 feet closer to the lake as compared to the existing Dike 3 centerline (Figure 2-1). See Figure 2-2 for the preliminary typical cross section for the new earthen Dike 3 (3.5-feet higher than the existing Dike 3). Studies found that the existing Dike 3 was unreliable because of significant vegetation growth on the dike and because the current topography did not match record drawings, suggesting undocumented modifications may have occurred.

The new Dike 3 would be about 150 feet longer than the existing dike, extending about 15 feet further into the right abutment and about 135 feet further into the left abutment. The nominal crest of the new Dike 3 would be at elevation 487.3 feet. Above the nominal new crest elevation, aggregate base course would be placed on the crest as the surface material. The width of the new crest (i.e., top of road surface) would be 16 feet along the entire length of the dike crest. Based on available geotechnical data, it is expected that excavation would extend 2 to 3 feet below ground surface to remove surficial soils and highly decomposed rock and to provide a suitable foundation on which to place new compacted embankment fill.

The design includes a filter zone and seepage collection systems in the new Dike 3 to provide seepage stability. The design also includes seepage collection systems consisting of an inspection well, approximately 10 feet of perforated pipe that extends laterally from the inspection well to collect seepage from the filter zone, and an outfall pipe that conveys collected seepage from the inspection well to the ground surface. The outfall pipes would need to extend across paved roads to discharge to

the ground surface. The design includes a weir at the discharge points of the outfall pipes to allow the monitoring of seepage. Additional foundation treatment to control seepage (i.e., grout curtains, cutoff walls, etc.) is not needed due to the low head and foundation characteristics. The new Dike 3 would have upstream slope protection, which will extend from the upstream toe to the crest and will consist of riprap placed on two layers of riprap bedding. Drainage improvements are provided downstream of the new dike and consist of a new open-channel drainage ditch across the existing Dike 3 and an 18-inch diameter corrugated metal pipe culvert under an existing paved access road. The crest of the raised dike would have a 1 percent cross-slope in the upstream direction for surface drainage.

RWD, LWD, Spur Dike, and Folsom Lake Crossing Concrete Floodwall Construction

Construction would consist of a reinforced concrete floodwall along the upstream side (lake side) of the LWD and RWD with a top elevation of 486.34 feet and a length of approximately 2,162 feet along the LWD and approximately 6,730 feet along the RWD. See Figure 2-4 for the preliminary typical cross sections for the concrete floodwall raise at the LWD and RWD. The existing embankment would be excavated to a depth of approximately 6 feet below the existing crest elevation to construct the concrete floodwall. Excavated material and imported filter/rock slope protection materials would be used to restore the crest to elevation 482.9 feet at the upstream hinge point, resulting in a concrete floodwall height of approximately 42 inches. A pavement section consisting of 8.5 inches of aggregate base and 3.5 inches of asphalt would be constructed along the crest for access along most of the LWD and portions of the RWD near the Main Dam.

A concrete floodwall would be constructed at the Spur Dike extending from the end of the LWD concrete floodwall to the Auxiliary Spillway Control Structure, approximately 310 feet long. The top elevation of the Spur Dike concrete floodwall would be 486.34 feet. The portion of the Spur Dike along the alignment of the concrete floodwall will be excavated to construct the floodwall foundation and then restored to existing grade. The height of the Spur Dike concrete floodwall would range from approximately 2.5 to 3.5 feet. A 35 to 50-foot-wide earthen access ramp would be constructed across the concrete floodwall alignment to provide Reclamation access to the Spur Dike and overlook areas. The structural concrete floodwall will be continuous through the proposed ramp.

Additionally, the Folsom Lake Crossing concrete floodwall will be constructed on the south side of the Auxiliary Spillway Control Structure along the existing hinge point of the Folsom Lake bank. The concrete floodwall would have a top elevation of 486.34 feet and would be approximately 180 feet long. The concrete floodwall would tie into the Auxiliary Spillway Control Structure parapet wall on the west side and into high ground on the east side. Despite its proximity to Folsom Lake Crossing, construction of the floodwall would not extend to the Folsom Lake Crossing roadway and would not impede traffic in any way.

A removable flood barrier would be required near the tie-in location between the Main Dam and the LWD concrete floodwall. The barrier will need to be at least 20 feet wide to allow for Reclamation to transport and place temporary pipes and pumps to the reservoir for providing emergency water supply to the City of Folsom.

MIAD Concrete Floodwall Construction

Construction of MIAD would consist of a concrete floodwall along the upstream side of the

crest with a top elevation of 486.34 feet and a length of approximately 5,000 feet. The existing embankment would be excavated to a depth of approximately 3 feet below the existing crest elevation to construct the concrete floodwall. An additional 17 feet of excavation for the cutoff wall (below the concrete floodwall) would also be necessary, which would total approximately 20 feet of excavation. Excavated material and imported filter/rock slope protection materials would be used to restore the crest to elevation 483.84 feet at the upstream hinge point, resulting in a floodwall height of approximately 36 inches. Surfacing on the downstream side would consist of 6 inches of aggregate base along the crest for vehicle access.

A test section of the wall may be constructed during the active work time frame to test the characteristics and performance of the material to be used in the finished floodwall design. This test feature would be removed by the close of the demobilization of the MIAD construction and staging sites.

Onsite Borrow and Disposal at MIAD West

The 2017 SEIS/EIR stated that there would be not be onsite borrow or disposal of construction material. The proposed plan is for some of the materials necessary to construct the project to come from onsite sources. The rest of the needed materials would be obtained from offsite sources. The onsite location that would be used for borrow, would also be used for disposal of uncontaminated materials. Any remaining disposal materials would go to offsite disposal sites which may include permitted landfills or duly licensed commercial disposal sites located within 30 miles of the proposed project site.

The area referred to as MIAD West is located southwest of the Mormon Island Auxiliary Dam and south of Mountain Village Dr. (Figure 2-8). MIAD West is a previously disturbed area that consists primarily of materials deposited from previous construction in the Folsom Lake area. It is proposed that material from MIAD West would be used for various aspects of the 3.5-foot raise associated with Folsom Dam Raise Modifications project. Additionally, uncontaminated disposal materials from various aspects of the Folsom Dam Raise Modifications Project would be deposited at MIAD West to maintain a similar topography and drainage patterns. Geotechnical studies conducted in 2020 indicate that MIAD West contains approximately 178,720 cubic yards of usable borrow material. Upon conclusion of borrow and disposal operations at MIAD West, restoration would consist of planting the area with a mixture of native grasses and forbs as per the restoration guidelines found in Table 2-4 in Appendix A.

Rock Crushing Operations at MIAD East

The final phase of the JFP included restoration of a large area between the LWD and MIAD. The restoration activities included the removal of a substantial quantity of riprap (boulders) from the restoration area. This riprap is temporarily stockpiled in a previously disturbed area, referred to as the "MIAD East Area", situated near the west end of MIAD on its landward side. The approximate location and limits of the riprap stockpile are shown in Figure 2-9.

The 2017 SEIS/EIR stipulated that most of the stockpiled riprap would be used for the proposed project as necessary to accomplish raising the dikes, dams, and MIAD. Any riprap remaining afterward would be removed and disposed off-site by the end of the final phase of the

overall Folsom Dam Raise project. The proposed plan is to conduct rock crushing operations at MIAD East, which would allow for the crushed material to be used for various portions of the Folsom Dam Raise Modifications project. Transport of the riprap from its current location to those project features where the riprap would be used would be accomplished by following the haul routes described in the Access and Haul Routes section below. Upon removal of the riprap stockpile and all associated rock crushing equipment from MIAD East, restoration would consist of planting the area with a mixture of native grasses and forbs as per the restoration guidelines found in Table 2-4 in Appendix A.

Pumping Water from Folsom Lake for Construction

Water would be pumped from Folsom Lake for construction at various locations. One pumping site identified between Dikes 1 & 2 (Figure 2-10) would serve the construction needs for Dikes 1, 2 and 3. Another pumping site is located at the south end of Dike 5 (Figure 2-11). Pumping sites would also be located at the water side toes of the RWD, LWD, and MIAD. Precautions associated with pumping water from Folsom Lake are detailed in Table 2-4 in Appendix A and Section 3.2.4.

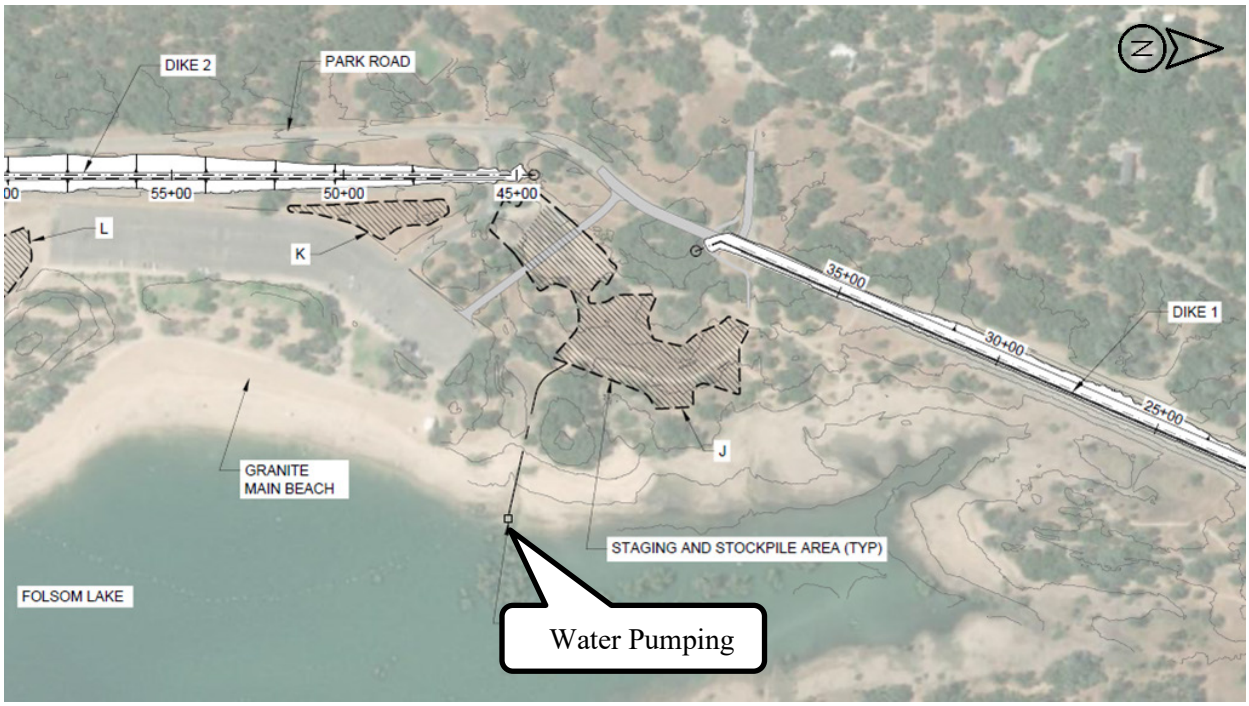

Figure 2-10. Location where water would be pumped from Folsom Lake for construction of Dikes 1, 2, and 3.

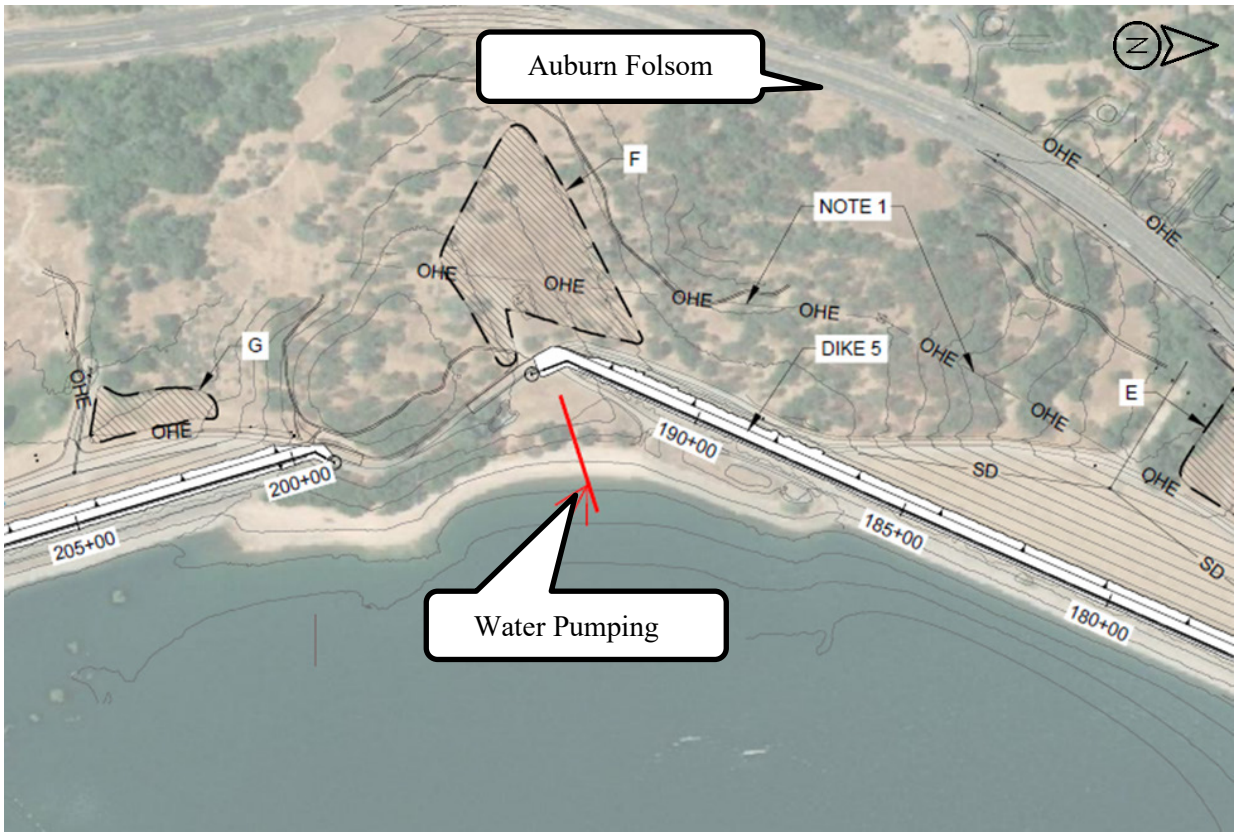

Figure 2-11. Location where water would be pumped from Folsom Lake for construction of Dikes 4, 5, and 6.

Access and Haul Routes

The external to FLSRA remain the same as those described in the 2017 SEIS/EIR (Figure 2-12). Construction access for light vehicles and smaller construction equipment to Dikes 1, 2, and 3 would enter from the north from Twin Rocks Road and use the dirt Old Country Road which connects to Park Road (see Figure 2-13 below). Old Country Road would need to be improved to accommodate construction vehicles and equipment. A seasonal drainage runs through a culvert that would require replacement near Twin Rocks Road. Park Road would be used as the main access road to various locations along Dikes 1, 2, and 3.

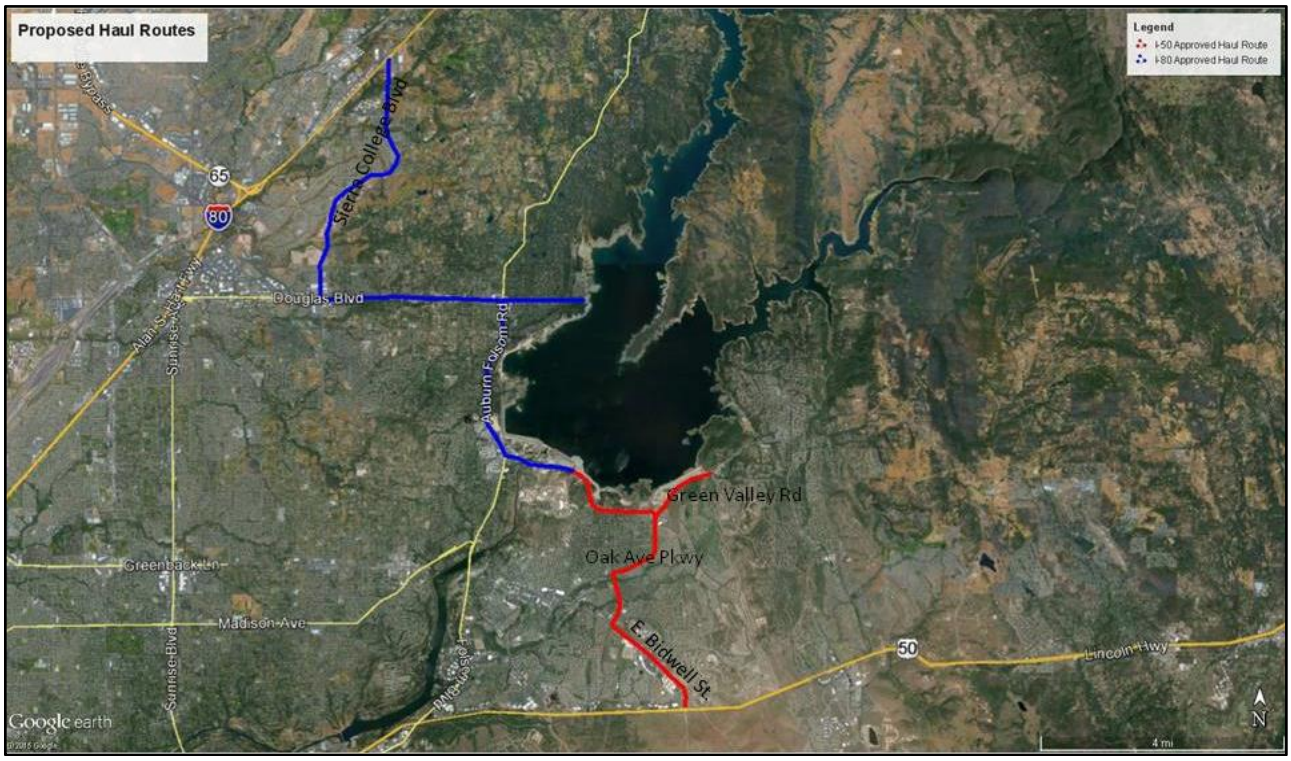

Figure 2-12. Proposed Folsom Dam Raise Modifications Project haul roads vicinity map.

The existing public entrance from Douglas Blvd. to the Granite Bay recreation area would be used as the primary entrance and exit for construction. However, haul trucks and other large construction equipment would be limited to using the Douglas Blvd. entrance to times of the year/day when recreational usage is at a minimum (as directed by State Parks). Residents that live along Twin Rocks Road would be notified prior to starting construction of this portion of the proposed project.

The main construction access to Dikes 4, 5, and 6 would be from Auburn Folsom Road near the north end of Dike 5 (see Figure 2-14 below). This access will have a temporary driveway connecting to Auburn Folsom Road for construction traffic. This additional access will minimize impacts to local traffic and circulation. A secondary construction access from Auburn Folsom Road along the existing Beal's Point roadway near the south end of Dike 6 may also be utilized. Use of the Beal's Point roadway access would be restricted to emergency access and to rare instances when construction equipment is too large to access the project site using the primary access route. Construction haul roads for the three dikes would mainly follow existing maintenance roads that run along the landward side of the dikes. Between Dikes 4 and 5 as well as between Dikes 5 and 6, the haul roads would follow existing maintenance roads that connect these dikes.

There would be two construction access points for work on the RWD (Figure 2-16 below). One access point would be off Folsom-Auburn Road at Folsom Dam Road. The construction access/haul route from this access point would follow established roads within Reclamation's CCAO facilities. The second access point would be off Folsom Lake Crossing at or near the existing Gate 1 construction access. The construction access/haul route from this access point would follow an existing haul road before passing over the control structure of the Auxiliary Spillway. During construction work on LWD and RWD, one lane of the existing road that runs from the LWD to the

Main Dam and then to RWD (e.g., Folsom Dam Road) would be open to other traffic.

The main construction access to Dike 7 would be at Folsom Point Road where it intersects with East Natoma Street, using the access point shown in Figure 2-15 below. The construction haul road at this location would follow a segment of Folsom Point Road before turning northwest to follow an existing maintenance road and then it would generally follow the O&M Bench road. However, it may also include an access at Folsom Lake Crossing (Figure 2-15).

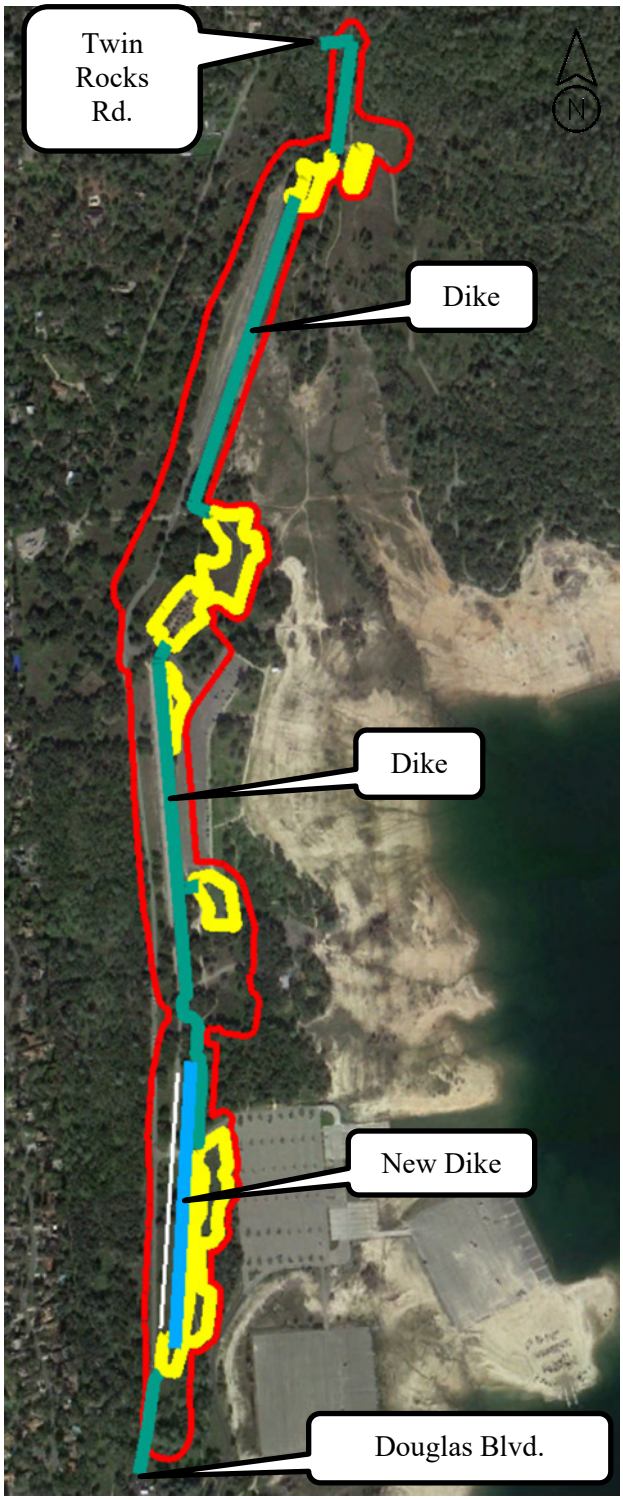

Figure 2-13. Dikes 1, 2, and 3: Limits of construction (red), haul routes (green), staging areas (yellow), existing Dike 3 centerline (white) and new Dike 3 centerline (blue).

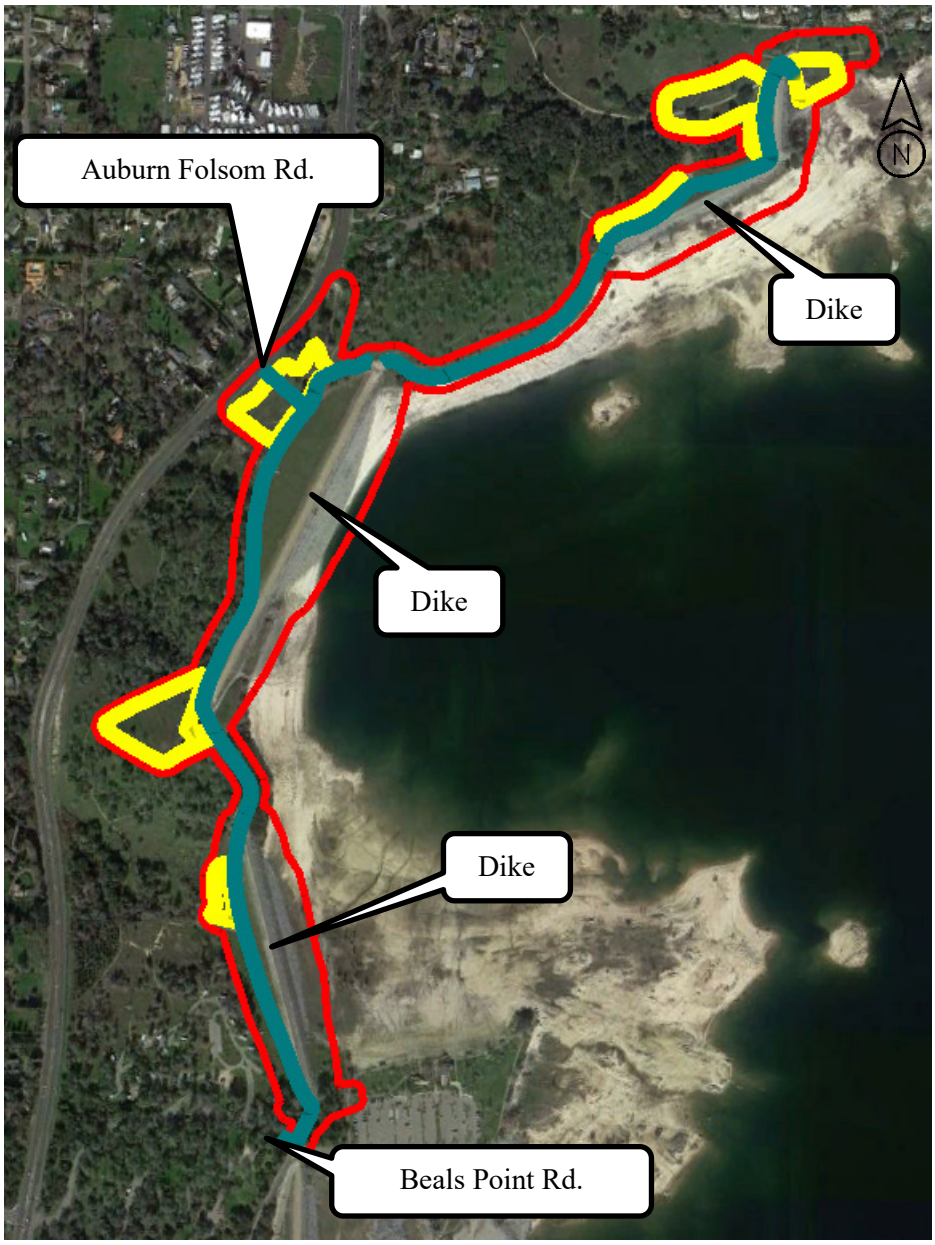

Figure 2-14. Dikes 4, 5, and 6: Limits of construction (red), haul routes (green), and staging areas (yellow).

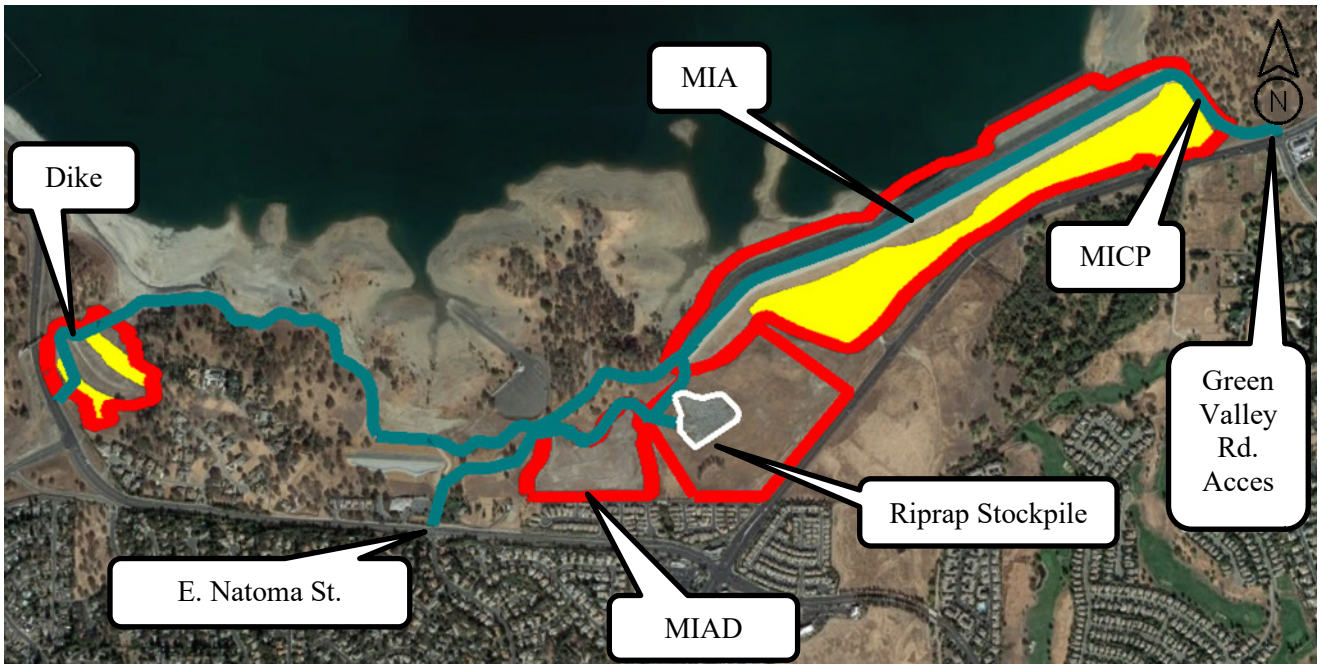

Figure 2-15. Haul routes, access points, and staging areas for the Dike 7 and Mormon Island Auxiliary Dam (MIAD) concrete floodwall construction, rock crushing operations at the MIAD East Riprap Stockpile, and borrow/disposal at MIAD West. MICPA is an acronym for Mormon Island Cove Parking Area. Limits of construction (red), haul routes (green), and staging areas (yellow).

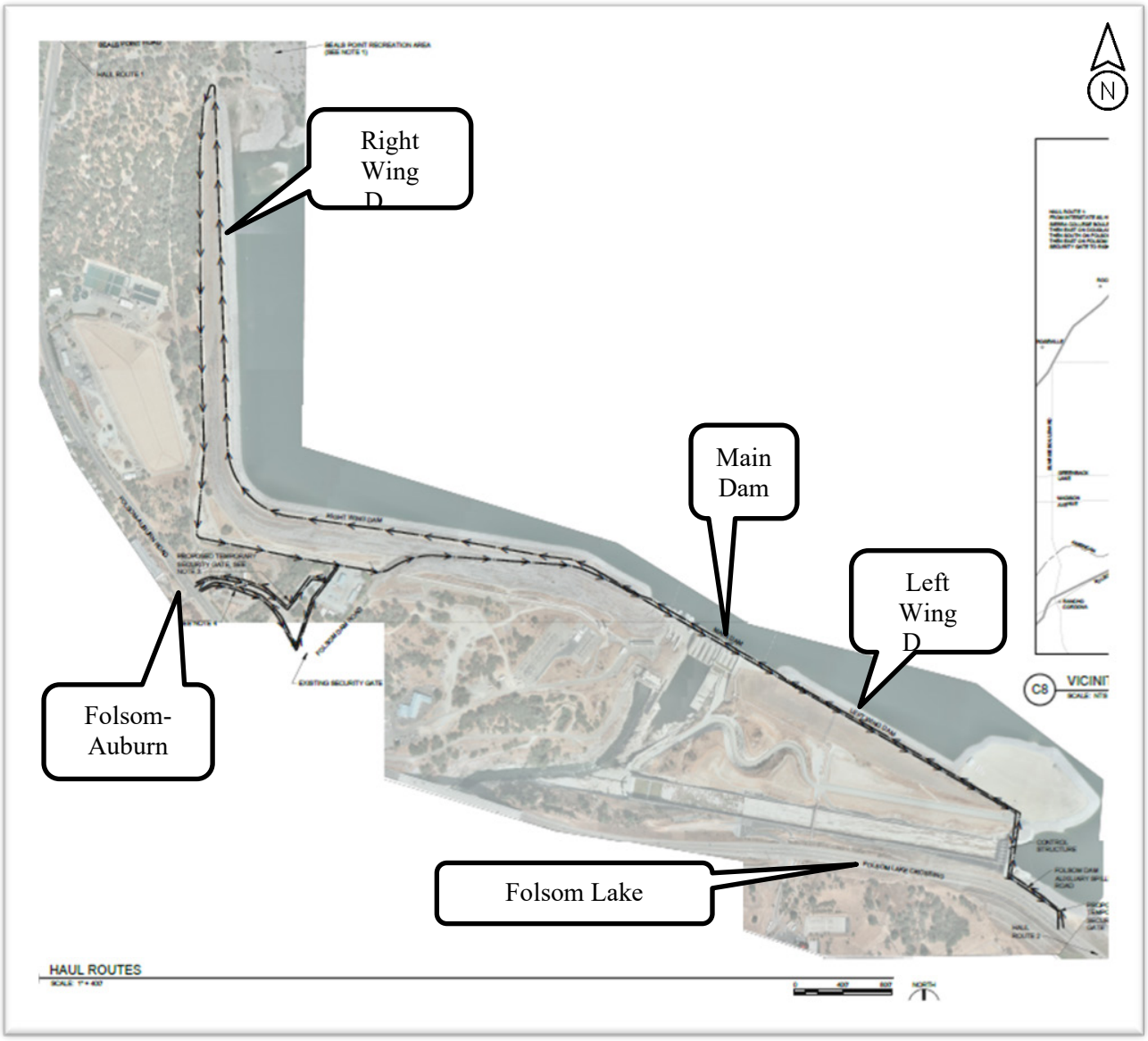

Figure 2-16. Right Wing Dam (RWD), Left Wing Dam (LWD), and Folsom Main Dam haul routes.

Construction vehicles and equipment would access MIAD and its associated construction staging areas using the same access to Dike 7 discussed above, then following the O&M Bench road to MIAD (Figure 2-15). Additionally, the Folsom Point Road access to Dike 8 would be used and construction traffic would then follow the O&M Bench road extending from Dike 8 to MIAD. The intersection of Access Road and Sophia Parkway with Green Valley Road would also be used (Figure 2-15). Construction traffic would follow Access Road northward to the east end of MIAD and its southern construction staging area. The existing maintenance road along the crest of MIAD would also be used as a construction access/haul road.

Staging Areas

The Main Dam would utilize a lane on top of the dam and a small staging area on the eastern side of the dam on the water side and would occupy roughly 1 acre (Figure 2-17). Three construction

staging areas would be utilized during the construction of the RWD and LWD floodwalls (Figure 2-18). One staging area would be located along the southern leg of the RWD on its landward side (south side). This staging area would occupy a disturbed area within Reclamation's CCAO facilities and would occupy roughly 1.4 acres. The second construction staging area would be in the Overlook Area and would occupy roughly 3 acres. The third staging area would be located along the southern leg of the LWD on its landward side (south side) and would occupy roughly 2.3 acres.

Figure 2-17. Folsom Main Dam Tainter gate refinements: Limits of construction (dashed lines) and construction staging areas (dotted lines).

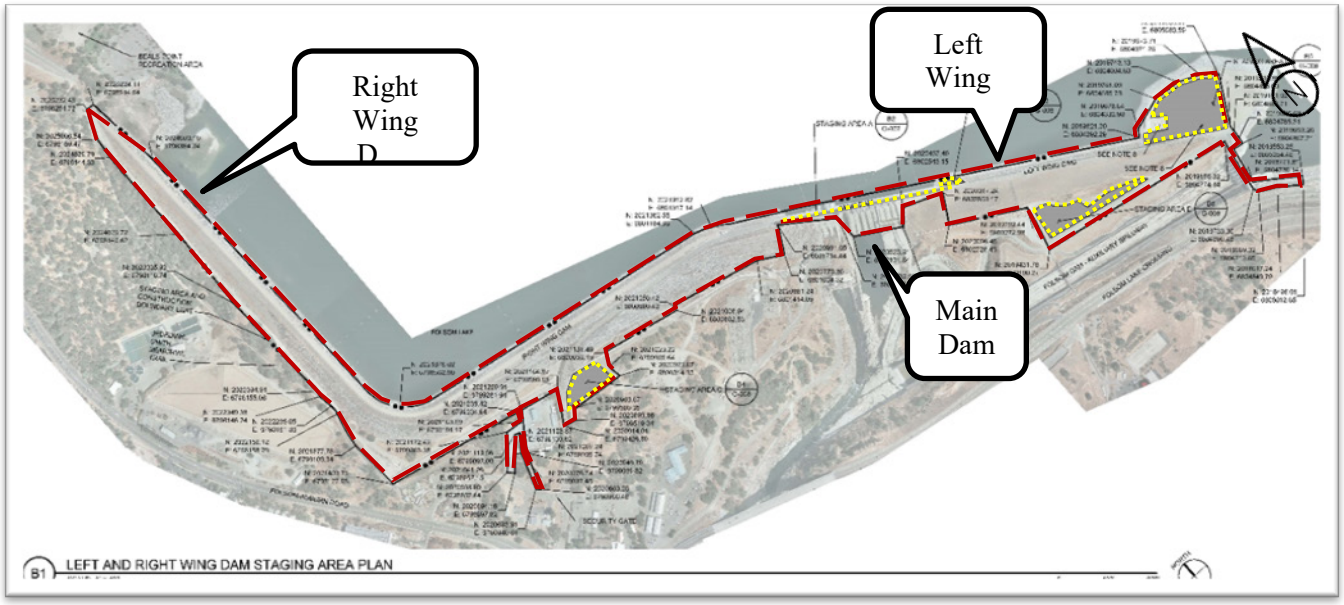

Figure 2-18. Right Wing Dam (RWD) and Left Wing Dam (LWD): Limits of construction (dashed line) and staging areas (dotted line) for concrete floodwall construction.

Six construction staging areas would be utilized for Dikes 1, 2, and 3 (Figure 2-13). The two staging areas at the north end of Dike 1 would occupy approximately 0.73 acres. The staging area between Dikes 1 and 2 would occupy approximately 3.7 acres. The two staging areas at Dike 2 (one on the north end and one on the south, both on the water side) would occupy approximately 1.57 acres. The staging area on the water side of Dike 3 would occupy approximately 3.6 acres.

Seven construction staging areas would be utilized for Dikes 4, 5, and 6 (Figure 2-14). The four staging areas at Dike 4 (one on the water side and three on the land side) would occupy approximately 3.92 acres. The two staging areas at the north and south end of Dike 5 (on the water side) would occupy approximately 4.82 acres. The staging area on the land side of Dike 6 would occupy approximately 0.5 acres.

Construction staging areas for the proposed work on Dike 7 would include the existing "Dike 7 Office Complex" area immediately south of the dike (approximately 2.1 acres), plus approximately 2.6 acres of previously disturbed land along the north side of the dike (Figure 2-15). Both areas have been previously used as staging areas during JFP construction phases and the Dike 7 Office Complex staging area is largely paved. The main construction staging area for the proposed work on MIAD would be an extensive area of previously disturbed land on the southeast (land side) of MIAD (Figure 2-15). This area would encompass approximately 36.1 acres.

There would be a total of 21 staging areas within the project area for this alternative (e.g. the overall Dam Raise project; proposed project). These staging areas would encompass a total of approximately 67.34 acres. The vegetation and habitat within each of these staging areas are discussed in detail in Section 3.4.

Site Preparation and Post-Construction Restoration and Cleanup

Once construction of a given phase of the proposed project begins, the initial work activities would typically include preparation of the construction staging areas and the establishment of haul roads (if necessary). Preparation of staging areas could include actions such as clearing and grading, spreading gravel, installation of temporary structures, and lighting, etc. Stop logs would also be installed prior to work on the tainter gates (Figures 2-19 through 21). If topographic alterations are necessary in a given staging area, topsoil would first be removed and temporarily stockpiled so that this topsoil can be replaced during post-construction restoration of the staging area. All native trees having a diameter at breast height (DBH) of 2 inches or greater would be preserved within the staging areas to the extent practicable. No tree removals would be allowed below the OHWM elevation of Folsom Lake. Any tree trimming necessary would be conducted by, or under the direct supervision of, a certified arborist. Any necessary tree removal or trimming activities would be conducted outside of the typical migratory bird nesting season if practicable and employ roosting bat avoidance protocols as described in Table 2-4.

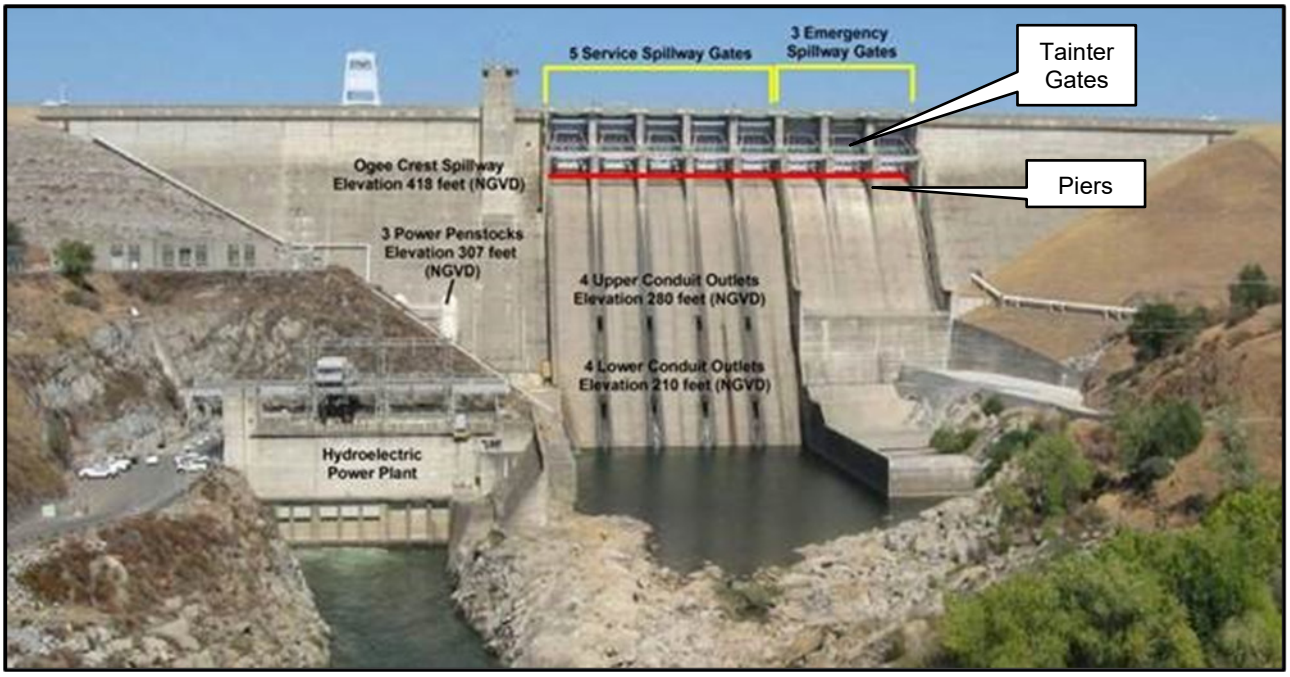

Figure 2-19. Folsom Main Dam with various existing elements identified.

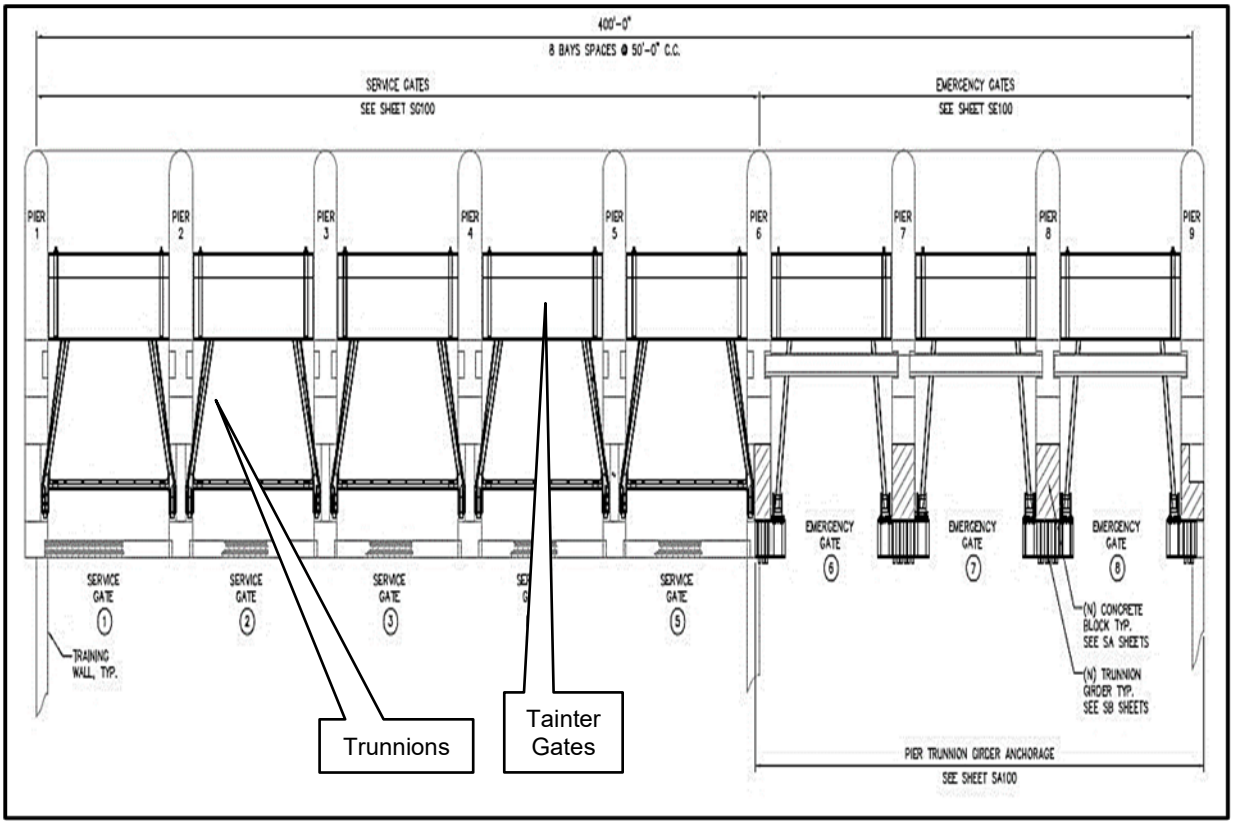

Figure 2-20. Depiction of Folsom Main Dam Tainter gates, trunnions, and associated piers. View from downstream side of dam looking upstream toward dam itself.

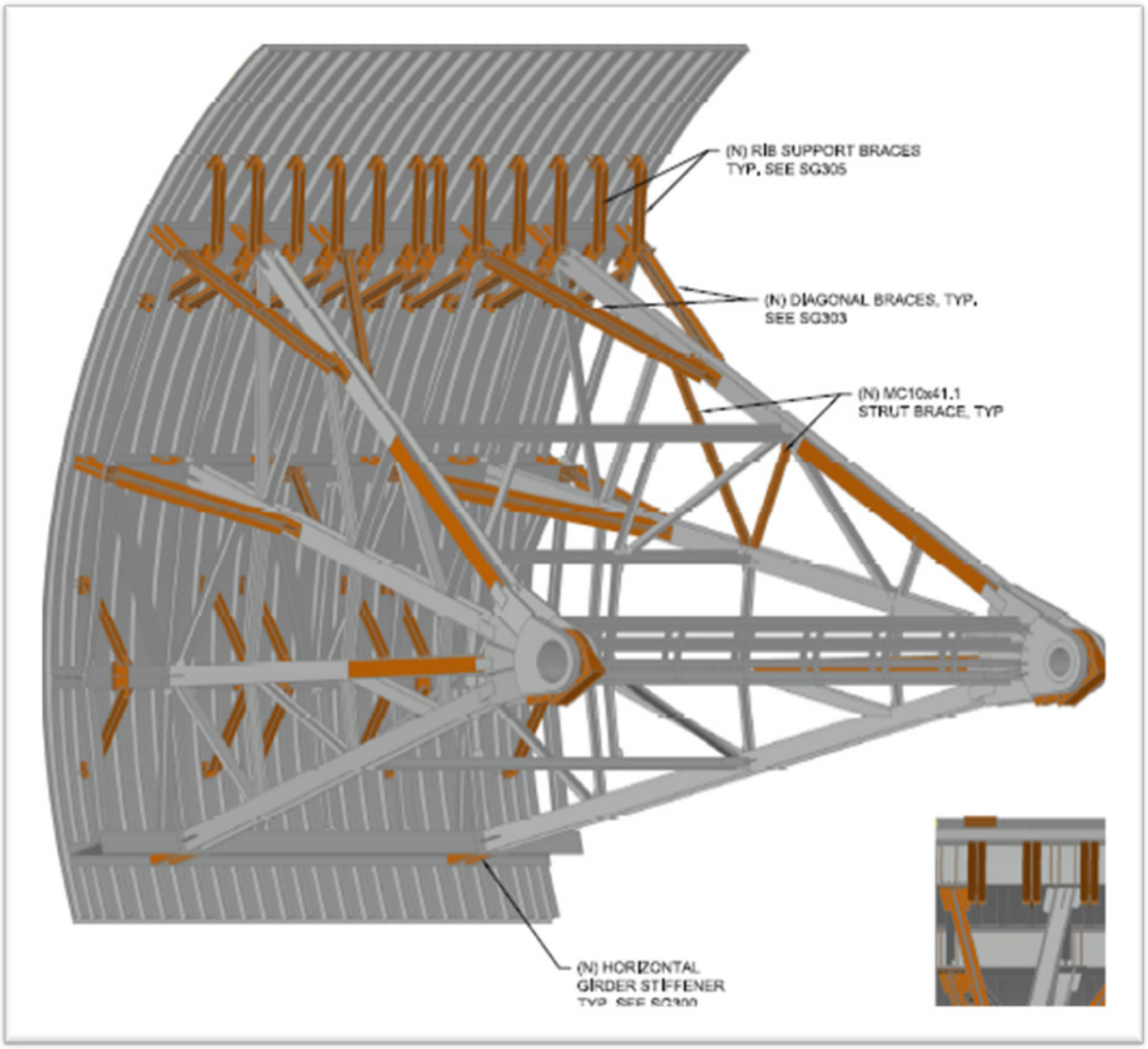

Figure 2-21. Drawing of a typical Tainter gate as viewed obliquely from the downstream side. Curved front panel (shown in gray) faces upstream.

After completing construction activities within a given phase of the proposed project, disturbed portions of the staging areas used for the project phase would be restored. One exception to this generalization would be in cases where a particular staging area is also going to be used for another portion of the project. In such cases, the shared staging area would not be restored until the final portion of the project to use the staging area is completed. Another exception would be for staging areas, or portions thereof, that encompass permanent man-made features. An example of such a feature is the main staging area for the Tainter gate refinements (Figure 2-17). Such areas would not be restored.

Restoration of staging areas would first involve restoring pre-construction topography to the degree practicable. Any topsoil removed and stockpiled during the original establishment of a particular staging area would be replaced during the process of topographic restoration. Next, a mixture of native grass and forb seeds would be planted throughout disturbed portions of staging

areas to establish a permanent vegetative groundcover. All seeds would be procured from California native seed growers. Table 2-2 provides a preliminary list of the grass/forb seed mixture that would be planted. This list and/or the seeding rates (pounds per acre) may be revised to account factors such as specific site conditions, the planting method used, and the availability of seed stock.

Table 2-2. Preliminary list of grasses and forbs to be planted (seeded) in the proposed project area for restoration.

Common Name	Scientific Name	Pounds PLS per Acre
California brome	*Bromus carinatus*	8
Blue wildrye	*Elymus glaucus*	2
Squirrel tail	*Elymus elymoides*	2
California poppy	*Eschscholzia californica*	2
California fescue	*Festuca californica*	2
Meadow barley	*Hordeum brachyantherum*	5
Creeping wildrye	*Leymus triticoides*	15
Miniature lupine	*Lupinus bilcolor*	2
Nodding needlegrass	*Nasella cernua*	2
Purple needlegrass	*Stipa pulchra*	5
Pine bluegrass	*Poa secunda*	8
Tomcat clover	*Trifolium willdenovii*	5
Small fescue	*Festuca microstachys*	10
Total Seed Mixture		**68**

PLS = Pure Live Seed. Pounds indicated are based on broadcast seeding or hydroseeding.

Disking would be performed prior to seeding to prepare the soil for seed placement. In compacted areas, the soil would be ripped or scarified to help reduce compaction. The method of seeding would be left to the contractor to determine, using hydroseeding, broadcast seeding, drill seeding, or a combination of these methods. In addition, soil imprinting may be employed in some areas to minimize seed runoff and help with local rainwater infiltration. Imprinting is a technique of soil-rolling that leaves small depressions in the soil surface that help break runoff, improve water infiltration, and prevent seed washout. Additionally, after the construction is complete, all temporary construction items such as signage, temporary fencing, etc., would be removed.

Construction Work and Schedule

The number of private construction employees present onsite each day would vary with scheduled construction activities. Up to 60 workers can be expected onsite any one day for the Tainter gate refinements work. Up to 50 workers can be expected onsite any one day for each portion of the earthen raise and concrete floodwall elements of the preferred alternative. The construction work schedule would consist of 10-hour days over 6 days per week throughout the entire year. Twenty-four-hour shift schedules may be requested when the construction schedule cannot be met in any other way. However, the double-shift schedule would be temporary and short-term and the effects to wildlife and aesthetic/visual resources would be minimized by implementing Mitigation Measure VW-13 in Table 2-4. Table ES-2 in the Executive Summary indicates the estimated schedule for the overall project.

2.3.7 Operation and Maintenance (O&M)

O&M requirements of the proposed project would not initially change with Alternative 2. Because the dam raise only makes changes to the use of surcharge capacity of the reservoir, it is anticipated that dam raise updates to the WCM would only require changes to the emergency spillway release diagram. In addition, implementation of the dam raise would be expected to further reduce the frequency of 160,000 cfs releases. However, the raise would result in an ability to sustain an increased flow of 160,000 cfs for a longer period of time and would have possible inundations around the lake up to 486.34 feet (NAVD88). Any post-construction operational changes would be defined in a WCM update and any O&M effects from the Folsom Dam Raise Project would be covered in a subsequent environmental document specifically addressing the proposed changes to the WCM when changes have been developed to a sufficient level of detail to be evaluated.

Generally speaking, until the WCM is updated after construction, the O&M requirements would be no different than existing O&M for both the 3.5-foot dam raise and the spillway Tainter gate modification, with the exception of some reduced maintenance in a couple of areas:

- The new cable hoist system would be stainless steel with greaseless bearings, so chain maintenance is significantly reduced to periodic inspection.
- The removal of hoist motor redundancy linkage would also remove associated maintenance of this element.
- There would be an added inspection element with the new top seal. The current design is that it would be concrete with embedded steel components for connection of rubber seals and connections to the piers. The top seal would be an extremely low maintenance element but would be an extra item to look at during periodic inspections.

2.3.8 Environmental Commitments

Various best management practices and other measures/actions would be employed during project construction to help avoid or minimize potential impacts to the environment. Where necessary, compensatory mitigation would be provided to help reduce the degree or significance of unavoidable adverse impacts. Such environmental commitments are primarily addressed in Chapter 3 of this document.

2.4 Comparison of Alternatives

Table 2-3 shows the overall level of significance for each issue area. It also provides a comparison of significance determinations among the No Action Alternative and Alternative 2 (the proposed project and preferred alternative). These alternatives are analyzed in this DSEIS/EIR as the final array of alternatives considered. Other alternatives have been screened out due to various reasons described in Section 2.1.2.

Table 2-3. Comparative Summary of Environmental Effects, Levels of Significance, and Mitigation: No Action Alternative vs. Proposed Project (Alternative 2).

	Alternative 1 – No Action Alternative, Construction as per the 2007 EIS/EIR and the 2017 SEIS/EIR	**Alternative 2 — Construction of a New Dike 3, Modified Concrete Floodwall Elements, Onsite Borrow and Disposal at MIAD West, Rock Crushing Operations at MIAD East, and Project Mitigation and Restoration Plan**
	Recreational Resources	
Effects	Construction of the Tainter gate refinements element would not adversely affect recreational resources since the construction areas involved are not accessible to the public and are not part of the FLSRA. During the construction of the raising Dikes 1-7, LWD, RWD, and MIAD, there would be some substantial restrictions to recreational facilities and resources in the immediate vicinity of construction work as well as a reduction in the availability and quality of recreational facilities and opportunities. While these adverse impacts would only be temporary, they are deemed significant since construction of each of the cited phases would last approximately 2 years.	Construction of the Folsom Dam Raise Modifications project would not adversely affect long term recreational resources since construction would be short term and access to areas used for construction would be restored once construction is complete. During the construction of the proposed project there would be some substantial restrictions to recreational facilities and resources in the immediate vicinity of construction work as well as a reduction in the availability and quality of recreational facilities and opportunities. While these adverse impacts would only be temporary, they would be significant since construction at each site would last approximately 2 years.
Significance	Temporary impacts without mitigation would be significant. Proposed avoidance, minimization, and mitigation measures would help reduce the magnitude of these temporary impacts, but not to a level that is less than significant. This alternative's long-term impacts to recreational resources would be less than significant with mitigation.	Temporary impacts without mitigation would be significant. Proposed avoidance, minimization, and mitigation measures would help reduce the magnitude of these temporary impacts, but not to a level that is less than significant. This alternative's long-term impacts to recreational resources would be less than significant with mitigation.
Mitigation	Mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): R-1, R-2, R-3, R-4, R-5, R-6, R-7, R-8, R-9, and R-10. Related measures proposed: VW-9, AV-1, TC-1, TC-4, TC-5, N-1, N-2, WW-2	Proposed mitigation measures (see Table 2-4 for descriptions): R-1, R-2, R-3, R-4, R-5, R-6, R-7, R-8, R-9, R-10, and R-11. Related measures proposed: VW-9, AV-1, TC-1, TC-4, TC-5, N-1, N-2, WW-2

	Vegetation and Wildlife	
Effect	Existing habitats would be significantly disturbed during project construction. These habitats and their acreages that could be directly affected include: developed/ disturbed areas (223.6 ac), lake (98.3 ac), annual grassland (66.9 ac), oak woodland (9.5 ac), oak savanna (2.5 ac), and riparian woodland (2.2 ac). Adverse impacts would largely be temporary, although there may be permanent loss of limited acreages of oak woodlands, oak savannas, and annual grasslands. The single riparian woodland area would be preserved. Refer to this table's section on water quality and Waters of the United States (WOUS) for information regarding potential project impacts to jurisdictional WOUS. Wildlife species would be temporarily displaced during the 4-year project construction period. A few terrestrial animals could be injured or killed by construction work. If any active bird nests must be removed, young occupying such nests could perish. During project construction there would be substantial degradation of wildlife habitats directly impacted by construction activities. Wildlife access to various habitats within and adjacent to the project work areas would be adversely affected during construction. After project construction, there would be no substantial fragmentation or degradation of habitats with the proposed mitigation measures. Natural habitats would likely not be affected to a point where wildlife presently utilizing the area could not live or successfully reproduce in or near affected areas.	Existing habitats would be significantly disturbed during project construction. These habitats and their acreages that could be directly affected include: developed/disturbed areas (224.5 ac), annual grassland (70.3 ac), and oak woodland (38.7 ac). Adverse impacts would largely be temporary, although there may be permanent loss of limited acreages of oak woodlands and annual grasslands. Refer to this table's section on water quality and Waters of the United States (WOUS) for information regarding potential project impacts to jurisdictional WOUS. Wildlife species would be temporarily displaced during the 4-year project construction period. Lighting for night work could disturb some species. Terrestrial animals could be injured or killed by construction work. If any active bird nests must be removed, young occupying such nests could perish. During project construction there would be substantial degradation of wildlife habitats directly impacted by construction activities. Wildlife access to various habitats within and adjacent to the project work areas would be adversely affected during construction. After project construction, there would be no substantial fragmentation or degradation of habitats given the proposed mitigation measures. Natural habitats would likely not be affected to a point where wildlife presently utilizing the area could not live or successfully reproduce in or near affected areas.
Significance	Impacts without mitigation would be significant. Impacts would be less than significant with mitigation.	Impacts without mitigation would be significant. Impacts would be less than significant with mitigation.

Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): VW-1, VW-2, VW-3, VW-4, VW-5, VW-6, VW-7, VW-8, VW-9, VW-10, VW-11, and VW-12. Related measures proposed: LS-1, LS-2, LS-3, LS-4, LS-14, AV-2, WW-2, WW-3, WW-12, WW-14, WW-15, and WW-16	Proposed mitigation measures (see Table 2-4 for descriptions): VW-1, VW-2, VW-3, VW- VW-1, VW-2, VW-3, VW-4, VW-5, VW-6, VW-7, VW-8, VW-9, VW-10, VW-11, VW-12, and VW-13. Related measures proposed: LS-1, LS-2, LS-3, LS-4, LS-14, LS-15, WW-1, WW-2, WW-4, WW-5, WW-6, WW-7, WW-8, WW-9, WW-10, WW-11, WW-12, WW-14, WW-15, WW-16, WW-17, AQ-1, AQ-2, and AQ-3.
	Special Status Species	
Effects	Project construction would likely require removal of some elderberry shrubs, thereby adversely affecting the valley elderberry longhorn beetle (VELB). Because of proposed mitigation measures and the level of take involved, such impacts are not likely to result in jeopardy to the VELB. There is a remote chance that bald eagles could be disturbed during project construction. Through avoidance and minimization measures, the project would not affect any bald eagles to a degree that causes (or may cause) injury to an eagle or a decrease in eagle productivity or nest abandonment. Nesting, Swainson's hawks, loggerhead shrikes, and white-tailed kites could also be temporarily disturbed during project construction. This is unlikely, however, and such impacts would be rendered less than significant by implementing avoidance, minimization, and mitigation measures recommended by the California Department of Fish and Wildlife (CDFW). Other migratory birds may nest in trees or shrubs that are within or close to the proposed project's limits of construction. Removal of trees/shrubs and general construction noise and activity could threaten active migratory bird nests.	The project construction would not require removal of elderberry shrubs, thereby adversely affecting the valley elderberry longhorn beetle (VELB). Because of proposed mitigation measures, impacts may affect but not likely to adversely affect VELB. There is a chance that foraging bald eagles could be disturbed during project construction. Through avoidance and minimization measures, the project would not affect any bald eagles to a degree that causes (or may cause) injury to an eagle or a decrease in eagle productivity or nest abandonment. Nesting, Swainson's hawks, loggerhead shrikes, white-tailed kites, and Peregrine Falcon could be temporarily disturbed during project construction. This is unlikely, however, and such impacts would be rendered less than significant by implementing avoidance, minimization, and mitigation measures recommended by the California Department of Fish and Wildlife (CDFW). Other migratory birds may nest and bats may roost in trees or shrubs that are within or close to the proposed project's limits of construction. Removal of trees/shrubs and general construction noise and activity could threaten active migratory bird nests and bat roosts. Such impacts would be avoided and minimized to the extent practicable.

Effects (cont.)	Such impacts would be avoided and minimized to the extent practicable. It may, however, be necessary to obtain a Special Purpose Permit from USFWS in order to remove active migratory bird nests in cases where direct impacts cannot be avoided.	It may, however, be necessary to obtain a Special Purpose Permit from USFWS to remove active migratory bird nests in cases where direct impacts cannot be avoided.
Significance	Impacts would be significant without mitigation. Impacts would be less than significant with mitigation.	Impacts would be significant without mitigation. Impacts would be less than significant with mitigation.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): LS-1, LS-2, LS-3, LS-4, LS-5, LS-6, LS-7, LS-8, LS-9, LS-10, LS-11, LS-12, LS-13, and LS-14. Related measures proposed: VW-1, VW-3, VW-4, VW-6, VW-7, VW-9, and AV-2.	Proposed mitigation measures (see Table 2-4 for descriptions): LS-1, LS-2, LS-3, LS-4, LS-5, LS-6, LS-7, LS-8, LS-9, LS-10, LS-11, LS-12, LS-13, LS-14, and LS-15. Related measures proposed: VW-1, VW-3, VW-4, VW-6, VW-7, VW-9, and VW-13.
Air Quality		
Effects	Emissions from construction equipment and worker vehicles would temporarily degrade air quality over the course of the 4-year project construction period. Primary pollutants of concern that would be emitted include ROG, NOx, CO, PM10, PM2.5, and SOx. Estimated emissions indicate the Placer County Air Pollution Control District (PCAPCD) threshold for PM10 would be exceeded in the first three years of construction. Estimated emissions indicate local Air Quality Management District thresholds for the other cited pollutants would not be exceeded. Emissions would also not exceed the USEPA's General Conformity *de minimis* thresholds. A few isolated areas slated for construction work may harbor naturally occurring asbestos (NOA). Dust generated in such areas could release NOA, however use of state- -prescribed BMPs during construction would greatly minimize this potential problem.	Emissions from construction equipment and worker vehicles would temporarily degrade air quality over the course of the 4-year project construction period. Primary pollutants of concern that would be emitted include ROG, NOx, CO, PM_{10}, $PM_{2.5}$, and SOx. Estimated emissions indicate the Placer County Air Pollution Control District (PCAPCD) threshold for PM_{10} would be exceeded in years 2022 and 2023. Estimated emissions indicate local Air Quality Management District thresholds for the other cited pollutants would not be exceeded. Emissions would also not exceed the USEPA's General Conformity *de minimis* thresholds. A few isolated areas slated for construction work may harbor naturally occurring asbestos (NOA). Dust generated in such areas could release NOA, however use of state prescribed BMPs during construction would greatly minimize this potential problem. Overall, air quality impacts would be less than those described in the 2017 SEIS/EIR.

Significance	Impact would be significant without mitigation. Impact would be less than significant with mitigation.	Impact would be significant without mitigation. Impact would be less than significant with mitigation.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions):AQ-1, AQ-2, AQ-3, AQ-4, AQ-5, AQ-6, and AQ-7. Related measures proposed: VW-1, VW-9, and TC-1.	Proposed mitigation measures (see Table 2-4 for descriptions): AQ-1, AQ-2, AQ-3, AQ-4, AQ-5, AQ-6, and AQ-7. Related measures proposed: VW-1, VW-9, and TC-1.
	Climate Change	
Effects	Emissions from construction equipment and worker vehicles would include CO2 and other "greenhouse gases" that can contribute to climate change. Estimated emissions of greenhouse gases, expressed as CO_2e, would not exceed the federal CO_2e reporting threshold of 25,000 metric tons CO_2e per year or the Placer County Air Pollution Control District (PCAPCD) threshold of 10,000 metric tons CO_2e per year. Such emissions would likely exceed the Sacramento Metropolitan Air Quality Management District (SMAQMD) threshold of 1,100 metric tons CO_2e per year during the first three years of construction.	Emissions from construction equipment and worker vehicles would include CO_2 and other "greenhouse gases" that can contribute to climate change. Estimated emissions of greenhouse gases, expressed as CO_2e, do not exceed the Placer County Air Pollution Control District (PCAPCD) threshold of 10,000 metric tons CO_2e per year or the Sacramento Metropolitan Air Quality Management District (SMAQMD) threshold of 1,100 metric tons CO_2e per year in all construction years. Overall, climate change impacts would be less than those described in the 2017 SEIS/EIR.
Significance	Impact would be significant without mitigation. Impact would be less than significant with mitigation.	Impact would be significant without mitigation. Impact would be less than significant with mitigation.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): CC-1 and CC-2. Related measures proposed: AQ-5 and AQ-6.	Proposed mitigation measures (see Table 2-4 for descriptions): CC-1 and CC-2. Related measures proposed: AQ-1, AQ-2, AQ-3, AQ-4, AQ-5, AQ-6, and AQ-7.
	Aesthetics and Visual Resources	
Effects	Access to a few relatively scenic vistas would be temporarily limited during project construction, but there would be no long-term adverse effect on scenic vistas. There would be substantial damage to a few scenic resources during construction, mainly as a result of alterations to proposed staging areas.	Access to a few scenic vistas would be temporarily limited during project construction, but there would be no long-term adverse effect on scenic vistas. There would be significant damage to a few scenic resources during construction, mainly as a result of alterations to proposed staging and stockpile areas.

Effects (cont.)	The existing visual character and quality of the affected dams, dikes, and staging areas would be degraded during construction, as would be certain viewsheds. Public access to various recreational trails would be temporarily restricted during construction, thereby limiting access to some natural areas that have relatively high aesthetic qualities.	The existing visual character and quality of the affected dams, dikes, and staging areas would be significantly degraded during construction, as would be certain viewsheds. Public access to various recreational trails would be temporarily restricted during construction, thereby limiting access to some natural areas that have relatively high aesthetic qualities. Nighttime construction could create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.
Significance	Short term impact would be significant and unavoidable and long-term impact would be less than significant with mitigation.	Short term impact would be significant and unavoidable and long-term impact would be less than significant with mitigation.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): AV-1 and AV-2. Related measures proposed: VW-3, VW-4, VW-9, VW-13, WW-2, WW-3, and WW-14.	Proposed mitigation measures (see Table 2-4 for descriptions): AV-1. Related measures proposed: VW-3, VW-4, VW-9, VW-13, WW-2, WW-3, and WW-14.
Noise		
Effects	Project construction activities would cause a substantial temporary increase in ambient noise levels. Nearby residents, wildlife, and recreationists could be adversely affected and experience noise from construction equipment and activities. Following project completion, the project would not have any noise effects.	Project construction activities would cause a substantial temporary increase in ambient noise levels. Nearby residents, wildlife, and recreationists could be adversely affected and experience noise from construction equipment and activities. Following project completion, the project would not have any noise effects.
Significance	Despite implementation of mitigation measures, temporary noise impacts would remain significant and unavoidable.	Despite implementation of mitigation measures, temporary noise impacts would remain significant and unavoidable.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): N-1, N-2, N-3, N-4, N-5, N-6, N-7, N-8, and N-9. Related measures proposed: N/A.	Proposed mitigation measures (see Table 2-4 for descriptions): N-1, N-2, N-3, N-4, N-5, N-6, N-7, N-8, and N-9. Related measures proposed: N/A.

	Water Quality and Waters of the United States	
Effects	Project construction activities, such as drilling, excavation, hauling, earthwork, and fill placement may disturb or mobilize sediments, having the potential to adversely affect total suspended solids, pH, turbidity, and dissolved oxygen in stormwater runoff and waters receiving this runoff. Debris and inadvertent spills of fuels, oils, or concrete mix materials from construction equipment, work areas, or the staging areas could be a source of contamination into Folsom Lake, the American River, and nearby wetlands and drainage swales and ditches. Some of the work on the spillway Tainter gates would be done over water with potential for lead paint to enter surface water downstream of the dam (lead paint is assumed present in all underlying primer on the structure). Through implementation of the mitigation measures proposed, water quality would not be affected following project completion. The 2017 SEIS/EIR project would not involve direct impacts to jurisdictional wetlands or watercourses (drainage swales, ditches, rivers, etc.) and such features would be protected. Project construction could require limited removal and subsequent placement of riprap within the jurisdictional limits of Folsom Lake when raising certain dikes and MIAD. This would result in temporary impacts to the lake, but there would be no appreciable loss of lake acreage or volume; hence such impacts would be de minimis and less than significant.	Project construction activities, such as drilling, excavation, hauling, earthwork, and fill placement may disturb or mobilize sediments, having the potential to adversely affect total suspended solids, pH, turbidity, and dissolved oxygen in stormwater runoff and waters receiving this runoff. Debris and inadvertent spills of fuels, oils, or concrete mix materials from construction equipment, work areas, or the staging areas could be a source of contamination into Folsom Lake, the American River, and nearby wetlands and drainage swales and ditches. Some of the work on the spillway Tainter gates would be done over water with potential for lead paint to enter surface water downstream of the dam (lead paint is assumed present in all underlying primer on the structure). Through implementation of the mitigation measures proposed, water quality would not be affected following project completion. The proposed project would not involve direct impacts to jurisdictional wetlands or watercourses (drainage swales, ditches, rivers, etc.) and such features would be protected. Replacement of a culvert under Old Country Road north of Dike 1 may have indirect impacts without mitigation but less than significant impacts with mitigation. Construction of a temporary haul route for at the toe of Dike 1 would temporarily directly impact approximately 0.8 acres of Folsom Lake but the impact would be less than significant upon restoration.

Effects (cont.)	Construction of a temporary detour route for Park Road (near Dikes 1 and 2) would directly impact approx. 0.5 acre of Folsom Lake. The detour road would be removed during completion of this phase of the project (raising Dikes 1-3), disturbed topography would be restored to approximate pre-construction topography, and the disturbed portion of the lake would be planted with a mixture of native grasses and forbs. This lake impact would be less than significant since the impact would be temporary, the affected area would be restored, and there would be no loss of lake acreage or volume.	
Significance	Impacts would be significant without mitigation and less than significant with mitigation.	Impacts would be significant without mitigation and less than significant with mitigation.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): WW-1, WW-2, WW-3, WW-4, WW-5, WW-6, WW-7, WW-8, WW-9, WW-10, WW-11, WW-12, WW-13, WW-14, WW-15, WW-16, and WW-17. Related measures proposed: VW-3, VW-4, VW-9, VW-11, VW-12, LS-1, LS-14, AQ-2, AQ-3, and AV-2.	Proposed mitigation measures (see Table 2-4 for descriptions): WW-1, WW-2, WW-4, WW-5, WW-6, WW-7, WW-8, WW-9, WW-10, WW-11, WW-12, WW-13, WW-14, WW-15, WW-16, and WW-17. Related measures proposed: VW-3, VW-4, VW-9, VW-11, VW-12, LS-1, LS-14, AQ-2, and AQ-3.
	Cultural Resources	
Effects	Alternative 2 as described in the 2017 SEIS/EIR would not result in adverse effects to historic properties. Existing historic properties would undergo physical changes, however these modifications constitute no adverse effect to the qualities that make the historic properties eligible for inclusion in the National Register of Historic Places (NRHP). No adverse effects to tribal cultural resources are anticipated.	Alternative 2 would not result in adverse effects to historic properties. Existing historic properties would undergo physical changes; however, those changes would not adversely affect to the qualities that make the historic properties eligible for inclusion in the National Register of Historic Places (NRHP). In addition, no adverse effects to historical resources are anticipated. If any historical resources, inclusive of Tribal Cultural Resources, or historic properties are discovered during project activities, impacts on cultural resources would be potentially significant.

Effects (cont.)		Mitigation would reduce these potential impacts to a less-than-significant level under CEQA and resolve any adverse effects under Section 106 of the NHPA (and NEPA).
Significance	Impact would be potentially significant without mitigation. Impact would be less than significant with mitigation.	Impact would be potentially significant without mitigation. Impact would be less than significant with mitigation.
Mitigation	Proposed mitigation measures (see Table 2-5 in the 2017 SEIS/EIR for descriptions): CR-1 Related measures proposed: N/A	Proposed mitigation measures (see Table 2-4 for descriptions): CR-1 Related measures proposed: N/A

CHAPTER 3.0 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION

3.1 Introduction

Two alternatives are analyzed in detail in this DSEIS/EIR; the No Action Alternative and Alternative 2, construction of a new Dike 3, 3.5-foot concrete floodwall raise (Dikes 1, 4-7, and MIAD), onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, and a project mitigation plan. Alternative 2 is the preferred alternative and the proposed project. This chapter describes the existing environmental resources that would be affected if either of the alternatives were implemented (see the Affected Environment section for each resource). It also describes the environmental consequences of implementing either alternative (see the Environmental Consequences section for each resource). Mitigation measures identified to avoid, minimize, or compensate for adverse project effects are discussed in the Avoidance, Minimization, and Mitigation Measures portion of each section.

This chapter describes existing conditions and future without project conditions (i.e., the No Action Alternative under NEPA and the No Project Alternative under CEQA) in the study area. The future without project conditions are the expected physical, environmental, and social conditions in the study area if there were no new Dike 3 were constructed; no concrete floodwalls constructed at Dike 1, Dikes 4-7, or MIAD; no onsite borrow/disposal at MIAD West; no rock crushing operations at MIAD East would be conducted; and no mitigation plan. Existing conditions are those that exist at a point in time prior to implementing the project. Under CEQA, the baseline for assessing significance of impacts is normally the environmental setting, or existing conditions, at the time an NOP is issued (CEQA Guidelines Section 15125(a)). Because this DSEIS/EIR supplements earlier documents, the NOP was published in 2014. For this DSEIS/EIR, existing conditions are set in 2020 when the NOI was published, and analysis initiated. This reflects the fact that construction of the auxiliary spillway, modifications to Dike 1, and other construction at the project site since 2014 have changed physical conditions at the site, and so 2014 conditions are no longer an appropriate baseline for analysis. Describing existing conditions helps to understand the environmental consequences that would occur under the No Action Alternative. The existing conditions and conditions under the No Action Alternative description may be the same for all, some, or none of the resources. Under NEPA, the environmental effects of the action alternatives (Alternative 2 in this case) are compared to conditions under the No Action Alternative. Changes to haul routes, access routes, and staging areas for Dike 2, LWD, and RWD since the 2017 SEIS/EIR are included in the analysis below.

3.1.1 Affected Environment

For each resource, this section describes the existing pre-project conditions of the environmental resource in the project area. Resources not evaluated in detail are described first, followed by the resources that may be significantly affected by the alternatives.

Although all conditions are subject to some change over time, most of these resources are not expected to change significantly over the 50-year period of analysis for this study. However, any changes expected in the future without project condition are described as part of the No Action Alternative in the Environmental Consequences section. The Analysis of Effects described in the Environmental Consequences sections uses the pre-project condition as its baseline to identify

changes to the resource under future with and without project conditions. The baseline environmental conditions assumed in the DSEIS/EIR for analyzing the effects of the Folsom Dam Raise project consist of the existing physical environment as of 2020.

3.1.2 Environmental Consequences and Mitigation

This DSEIS/EIR assumes that the future without project environmental conditions are similar to the existing conditions. Therefore, the description of the No Action Alternative for each resource is the same as the description of the existing condition for that resource, except where explicitly highlighted. For each resource, the environmental effects of implementing Alternative 2 (the proposed project) are compared to the No Action Alternative which, in this case, is the same as the existing conditions. This satisfies both the requirements of NEPA and the requirements of CEQA.

Both adverse and beneficial effects are considered including direct and indirect effects that could occur during or following construction. Cumulative effects are addressed in Chapter 4 as required by CEQA and the applicable NEPA regulations. The NOI was published before Army implementation of the Council on Environmental Quality's (CEQ) updated NEPA regulation 40 CFR 1500-1508 (September 14, 2020) therefore, this document adheres to prior NEPA regulations. Each section, where appropriate, contains a discussion of the methods used to analyze effects. In addition, significance criteria for each resource are used to evaluate the level of significance of any adverse effects. Finally, mitigation measures are proposed to avoid, minimize, or mitigate (compensate) any significant adverse effects on each resource.

Significance criteria (or "thresholds of significance") are used to define the level at which an impact would be considered significant. The significance thresholds used in this DSEIS/EIR are those identified in Appendix G of the State CEQA Guidelines, as amended. Although NEPA does not prescribe specific thresholds of significance, it is common practice to identify thresholds by which to measure the environmental effects of each alternative. The significance determination under NEPA is then made considering the context and intensity of the environmental effects. Because this DSEIS/EIR is a joint NEPA/CEQA document, and because CEQA thresholds are more stringent, the CEQA Guidelines Appendix G have been used in this environment analysis and apply to the assessment of effects under both NEPA and CEQA. Thresholds may be quantitative and qualitative; they may be based on agency or professional standards, or on legislative or regulatory requirements that are relevant to the impact analysis. Where a standard, legislative or regulatory requirement are a described, this document will provide information on whether the requirements are to be implemented by USACE, the NFS or both.

Significance criteria used in this DSEIS/EIR are based on the checklist presented in Appendix G of the State CEQA Guidelines; factual or scientific information and data; and regulatory standards of Federal, State, regional, and local agencies. These thresholds also include the factors taken into account under NEPA to determine the significance of the action in terms of the context and the intensity of its effects.

An environmental document prepared to comply with CEQA must identify the significance of the environmental effects of a proposed project. Therefore, for each effect (impact), a conclusion is provided regarding its significance. A "significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by

the project" (State CEQA Guidelines, 11 Section 15382).

This DSEIS/EIR uses the following terminology based on CEQA to denote the significance of each environmental effect (impact), and includes consideration of the "context" of the action and the "intensity" (severity) of its effects in accordance with NEPA guidance (40 CFR 1508.1):

No Impact indicates that the construction, operation, and maintenance of the Proposed Action and Action Alternatives would not have any direct or indirect impacts on the environment. It means that no change from existing conditions would result. This impact level does not require mitigation.

Beneficial Impact would result in a beneficial change in the physical environment. This impact does not require mitigation.

Adverse Impact would result in a negative change to a resource or physical environment. Significance is important.

Less Than Significant Impact would not result in a substantial or potentially substantial adverse change in the physical environment. This impact level does not require mitigation, even if applicable measures are available under CEQA.

Significant Impact is defined by CEQA Section 21068 as one that would cause "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project." Levels of Significance can vary by alternative based on the setting and the nature of the change in the existing physical condition. Under CEQA, mitigation measures or alternatives to the Proposed Action must be provided, where applicable, to avoid or reduce the magnitude of significant impact.

Potentially Significant Impact is one that if it were to occur, would be considered a significant impact as described above. However, the occurrence of the impact cannot be immediately determined with certainty. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact. Therefore, under CEQA, mitigation measures or alternatives to the Proposed Action must be provided, where necessary and applicable, to avoid or reduce the magnitude of significant impacts.

An impact may have a level of significance that is **too uncertain to be reasonably determined**, which would be designated too speculative for meaningful consideration, in accordance with State CEQA Guidelines Section 15145. Where some degree of evidence points to the reasonable potential for a significant effect, the DSEIS/EIR may explain that a determination of significance is uncertain but is still assumed to be "potentially significant" as described above. In other circumstances, after thorough investigation, the determination of significance may still be too speculative to be meaningful. This is an effect for which the degree of significance cannot be determined for specific reasons, such as because aspects of the impact itself are either unpredictable or the severity of consequences cannot be known at this time.

3.2 Resources Not Considered in Detail

Initial evaluation of the effects of construction of the selected alternative (Alternative 2)

indicated that there would likely be little to no direct, indirect, or cumulative effects (CEQA analysis only) on several resources. The impacts on all these resources are less than significant and are described in Sections 3.2.1 through 3.2.12 and 3.2.14 through 3.2.15. Section 3.2.13 describes resources that were adequately discussed in the 2017 SEIS/EIR (traffic and circulation) and do not require detailed discussion because the impacts associated with the selected alternative are equal to or less than those described in the 2017 SEIS/EIR and the same mitigation measures would be implemented.

3.2.1 Hydrology and Hydraulics

See Section 3.2.1 of the 2017 SEIS/EIR. The following has been updated to include changes to the section of "Hydraulics" that references the WCM:

The JFP auxiliary spillway, completed in October 2017, provides additional flood risk management benefits for Folsom Lake (the maximum discharge capacity of the newly constructed auxiliary spillway is approximately 312,000 cfs). The WCM was updated to take advantage of the additional release capabilities that the JFP provided and the effects of which were analyzed in the 2019 Folsom Dam Modification Project Water Control Manual Update Final Supplemental Environmental Assessment/Environmental Impact Report (2019 WCM FSEA/EIR).

Because there would be no initial changes to the operation of Folsom Lake in this construction effort, impacts to hydraulics during the construction of the Folsom Dam Raise would be less than significant. The 2019 WCM FSEA/EIR tooks into account changes in operations due to additional capabilities of the Joint Federal Project. This DSEIS/EIR focuses on effects associated with construction of the selected alternative, which has not changed since the 2017 SEIS/EIR therefore hydrology and hydraulics does not require further consideration.

3.2.2 Hydropower

See Section 3.2.2 in the 2017 SEIS/EIR. The construction of the Folsom Dam Raise would have no effect on the ability of Folsom Dam to generate hydropower. The project would not change any water diversions that can affect power generation.

3.2.3 Water Supply

See Section 3.2.3 in the 2017 SEIS/EIR. The Action Alternative would not modify water storage capacity or municipal water delivery practices at Folsom Lake.

3.2.4 Fisheries and Aquatic Resources

Native and introduced fishes are present in the Folsom Lake area. Native fishes occur primarily as a result of their continued existence in the tributaries of Folsom Lake and Lake Natoma. Two native species are planted in Folsom Lake for fishing, rainbow trout and Chinook salmon. The populations of most other species are currently self-supporting. Introduced fishes are more commonly found in the reservoirs than are native fishes. Most of these fishes were introduced into the State as game fish or as forage fish to support game fish populations.

Construction of the proposed project (Alternative 2) would involve pumping water from Folsom Lake. However, the integration of best management practices (BMPs) into the construction plan, such as fish screens at the pump suction, would mitigate any potential impacts. All other construction work, including the haul route at the water side toe of Dike 1, would be conducted in the dry and would not impact fisheries or aquatic resources. It is anticipated that the effects on fish in the lake would be less than significant.

There would be no interference with the movement of migratory fish and the impacts (or potential impacts) to Folsom Lake described above would be temporary and negligible. Therefore, the proposed project is not expected to adversely affect fishery or aquatic resources. This Draft SEIS/EIR does not evaluate any potential changes to downstream releases that may impact downstream fisheries and aquatic resources since the update to the WCM has not yet been developed to determine what those changes may be. Effects to downstream resources will be evaluated in subsequent environmental documentation as necessary once alternative operational changes are more fully developed. As part of standard construction practices, the contractor would be required to develop and submit a Storm Water Pollution Prevention Plan (SWPPP) and a Spill Preventions and Countermeasure Plan (SPCP) prior to initiating construction activities to minimize the potential for soil or other contaminants to enter Folsom Lake. The SWPPP and SPCP must be approved by the USACE.

For Alternative 2, no materials would be discharged into Folsom Lake or the American River. Water trucks would be used for dust suppression along all areas of disturbed soil and along the haul routes; trucks would be monitored so over-watering does not occur. If equipment is to be refueled onsite, BMPs would be used to avoid and contain any possible spills. The use of BMPs, including implementation of the SWPPP and SPCP, during construction would help ensure that this project would have a less than significant impact on fisheries or aquatic resources.

3.2.5 Geology, Mineral Resources, Seismicity, and Soils

See Section 3.2.5 in the 2017 SEIS/EIR. The following update is included to supplement the information in Section 3.2.5 of the 2017 SEIS/EIR:

The project would not result in the loss of availability of a known mineral resource of value to the region. Therefore, there would be no effects to mineral resources due to the project. The project is not located on expansive soil that can cause significant damage to or disruption of engineered utilities or structures and would not result in soil erosion or the loss of topsoil. Although the dikes, dams, borrow/disposal area, and stockpile areas would be disturbed during construction of the 3.5-foot raise, the soil and roads would be restored upon completion of the project.

3.2.6 Land Use and Planning

See Section 3.2.6 in the 2017 SEIS/EIR. There would be no effect to land use as a result of the project.

3.2.7 Agriculture and Forestry Resources

There is no farmland or forestry land within the project area. Therefore, there would be no

adverse effects on agricultural and forestry resources.

3.2.8 Socioeconomics

See Section 3.2.8 in the 2017 SEIS/EIR. No actions associated with the project would limit either current or future opportunities for agriculture, business, employment, or housing. While there are residents located adjacent to the project area, these populations do not comprise substantial minority or low-income populations. No populations would be displaced as a result of project construction, and no local industry would be disrupted by project activities. There would be little to no effects to minorities or low-income populations. Therefore, socioeconomics is not evaluated further in this DSEIS/EIR.

3.2.9 Population and Housing

See Section 3.2.9 in the 2017 SEIS/EIR. No existing housing is within the project footprint, the Folsom Dam Raise project would not displace any existing housing or people, necessitating the construction of replacement housing elsewhere. The Folsom Dam Raise would not cause population growth in the nearby area, either directly or indirectly. Therefore, there would be no effects to population and/or housing.

3.2.10 Public Utilities and Services

See Section 3.2.11 in the 2017 SEIS/EIR. At the current level of design, construction would not access or realign the existing potable water supply, sanitary sewerage, or storm sewer systems. Existing haul routes would be used by construction vehicles to avoid overloading public roadways and causing delays to public services. If for any reason utilities would require a disruption in service, residents and businesses within the potentially affected area would be given notice of the anticipated time and duration of the disruption before starting construction. Therefore, the effects on public utilities or services as a result of project construction would be less than significant.

3.2.11 Hazardous, Toxic, and Radioactive Waste

See Section 3.2.10 in the 2017 SEIS/EIR. As a result, construction of the project is not expected to result in any adverse effects due to HTRW. If any HTRW sites are identified during construction, appropriate response activities would be conducted to prevent potential adverse effects. Lead is assumed present in all underlying primer on the dam structure and is further addressed in Section 3.3.8, Water Quality and Waters of the United States.

The construction of the Folsom Dam Raise project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or release of hazardous materials into the environment. It would not interfere with any emergency response or evacuation plans. The project would not expose nearby schools or other sensitive receptors to hazardous emissions or materials. It is not located on a hazardous materials site that would create a significant hazard to the public or the environment. Therefore, the Folsom Dam Raise project would not result in adverse effects to HTRW resources or to the public and not discussed further.

3.2.12 Public Safety

See Section 3.2.12 in the 2017 SEIS/EIR. The construction of the Folsom Dam Raise Modifications Project would have little to no effect on public safety.

3.2.13 Traffic and Circulation

The impacts of the Folsom Dam Raise project on traffic and circulation were analyzed in the 2017 SEIS/EIR, Section 3.9. External haul routes remain unchanged and the number of haul trucks and other construction equipment on surrounding public roadways would be reduced due to floodwall construction requiring fewer materials than earthen raises of dikes and dams as described in the 2017 SEIS/EIR. While the impacts would be temporary, they would be significant and unavoidable. The impacts of the selected alternative (Alternative 2) for this Draft SEIS/EIR are anticipated to be similar to or less than those analyzed in the 2017 SEIS/EIR therefore, further analysis is not required.

3.2.14 Energy

The proposed project would be constructed using typical construction methods and would not include any activities identified as wasteful or having unusually high energy consumption. Operational activities and energy use would be similar to existing activities. This topic is not discussed further in this SEIS/EIR.

3.2.15 Wildfire

The project site includes areas of Moderate Fire Hazard Severity Zone. There are State Responsibility Areas in proximity to the project site in which additional analysis of wildfire hazard would be called for under Appendix G of the State CEQA Guidelines. However, the Folsom Dam Raise Project does not include changes that would impair emergency response or evacuation, exacerbate wildfire risks, require construction of infrastructure that might exacerbate wildfire risk, or expose downslope areas to risk based on post-wildfire instability. This topic is not discussed further in this SEIS/EIR.

3.3 Resources Considered in Detail

3.3.1 Recreation

3.3.1.1 Recreation: Environmental Setting

See Section 3.3.1 in the 2017 SEIS/EIR. Figure 3-1, below, illustrates the Folsom Lake State Recreation Area.

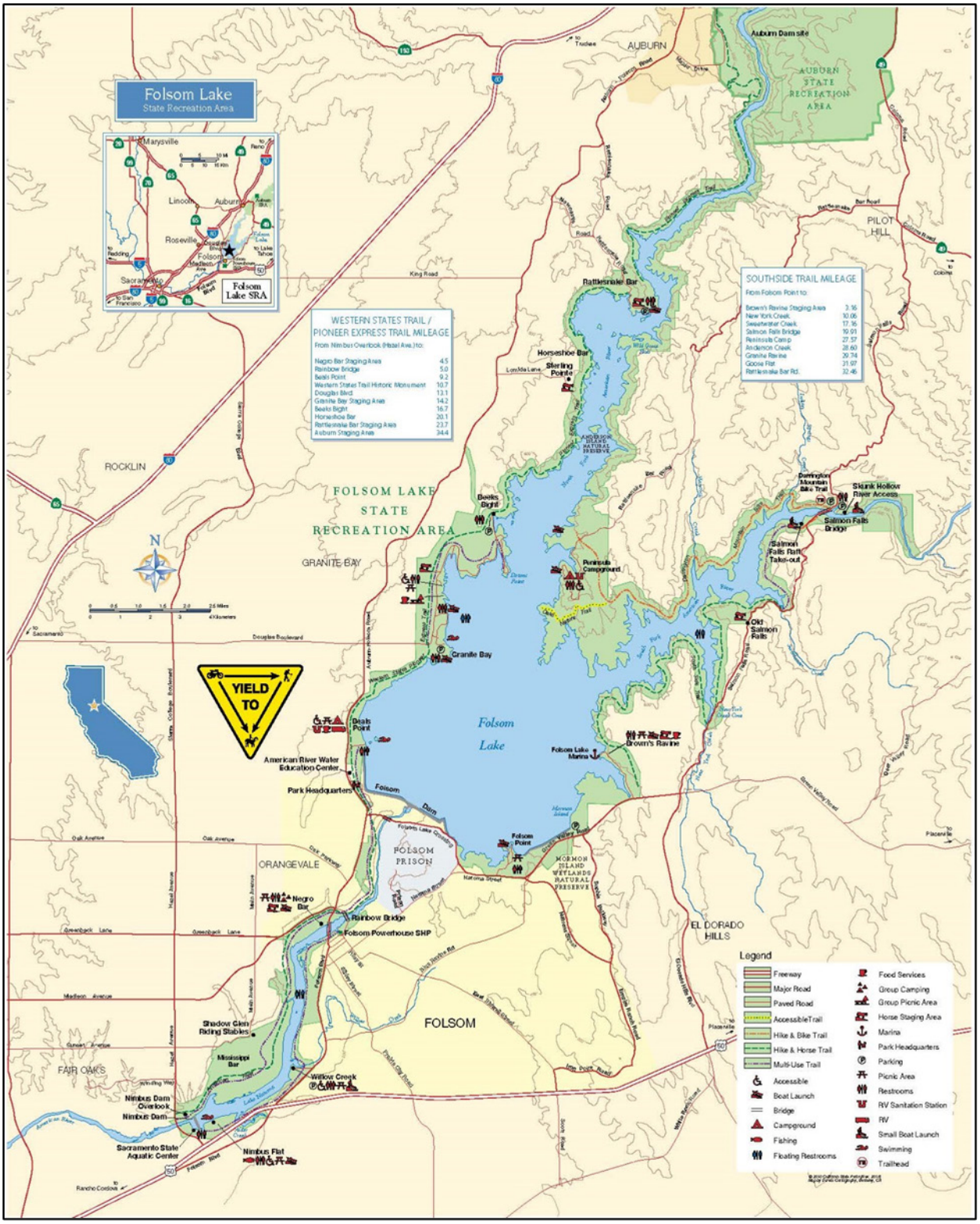

Figure 3-1. Recreational trail system within the Folsom Lake State Recreation Area (Folsom Lake State Recreation Area, 2015).

3.3.1.2 Recreation: Environmental Consequences

Methodology

The FLSRA supports a diverse range of outdoor recreation activities and opportunities. Impacts to recreational opportunities within the project area are evaluated based on temporary and permanent changes to those resources that would occur during implementation of the project. In making a determination of the extent and implications of recreational changes, consideration was given to:

- The closure or reduced public availability to recreational sites and access points;
- Truck traffic and construction activities interfering with recreation activities and access points;
- Requirements for the construction or expansion of recreational facilities; and
- Potential receptors in the area including staff, day use recreationists, campers, boaters and other water-based recreationists. All recreational groups were taken into account during analysis of impacts.

Basis of Significance

Effects to recreational resources are considered significant if construction would:

- Substantially restrict or reduce the availability or quality of existing recreational facilities and opportunities in the project vicinity; or
- Displaced recreation from sites affected by construction would substantially contribute to overcrowding or exceed the facility capacity at other recreational sites (including sites within the FLSRA).

3.3.1.3 Recreation: Alternative 1: No Action Alternative

Under the No Action Alternative, a new Dike 3, 3.5-foot concrete floodwall raises (Dike 1, Dikes 4-7, and MIAD), the earthen raise of Dike 2, onsite borrow and disposal at MIAD West, and rock crushing at MIAD East, and the mitigation would not be constructed. Therefore, the project would disturb existing recreational opportunities as described in the 2017 SEIS/EIR. The 2017 SEIS/EIR project impacts to recreation would be temporary and without mitigation would be significant. Temporary impacts with mitigation would be reduced but would still be significant and unavoidable. Long-term impacts would be less than significant with mitigation.

3.3.1.4 Recreation: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

The construction of a new Dike 3, 3.5-foot concrete floodwall raises (Dike 1, Dikes 4-7, and MIAD), onsite borrow and disposal at MIAD West, rock crushing at MIAD East, and mitigation plan

would all have temporary impacts on recreation during construction. For safety, the public could not be allowed to access these areas during construction. Since the Main Dam, RWD, LWD are not open to public access, construction of these areas would not affect recreation.

Granite Bay Area

The main construction access to Dikes 1, 2, and 3 could be from Douglas Boulevard, then entering the FLSRA on Park Road (the public entrance to the Granite Bay portion of the FLSRA). However, use of this route would be restricted to days of the year and times of day when recreational traffic is low. The USACE and/or the construction coordinator would coordinate with State Parks' Folsom Sector Superintendent for use of this construction access route (see Mitigation Measure R-8 in Table 2-4 in Appendix A).

The secondary access route that would be used during the raising of Dikes 1, 2, and 3 would be via Twin Rocks Road, entering the FLSRA along a remnant segment of Old County Road that is not open to public access (Figure 2-13 in Section 2.3). This access would be restricted to primarily light vehicles and smaller construction equipment. Prior to starting construction, residents that live along the segment of Twin Rocks Road that would be used for project access would be notified of the impending use of the road by construction vehicles and the estimated duration of such use (see Mitigation Measure R-1 in Table 2-4 in Appendix A).

The existing public access to the northern half of the Granite Bay Recreation Area and the North Granite Area (Beeks Bight, Dotons Point, Oak Beach and Point) is via Park Road, a paved, two-lane road that runs parallel to Dikes 2 and 3 but runs along the crest of Dike 1. The portion of Park Road that runs along the crest of Dike 1 would be reduced to a signalized one-way one lane road for approximately 2 years during construction of Dikes 1 and 2 and construction of the new Dike 3. A temporary detour road would be built to serve as the entry to the Granite Bay Main Beach parking lot prior to closing the existing entry road for project construction purposes (Figure 3-2 below). Temporary signs would be installed on Park Road and the detour road to guide people to the detour road. At the conclusion of construction, the detour would be removed, and the area restored to pre-project conditions (see Mitigation Measures R-2 and R-4 in Table 2-4 in Appendix A).

Various existing access roads and trails intersect with Dikes 1 through 3. Segments of these roads and trails would be impacted during construction. The access road to the Granite Bay Horse Assembly Area (HAA) extends west from the south end of Dike 1. To reduce the time this access road would be closed, the construction contractor would be required to prioritize work necessary to raise Dike 1 and the access road (see Mitigation Measure R-5 in Table 2-4 in Appendix A). It is estimated that the HAA access road would initially need to be closed for approximately 3 to 4 weeks. At the end of this period, the surface of the affected HAA access road segment would be aggregate base course material. Later, the HAA access road would need to be closed for roughly 1 week for paving of this road.

The existing access road for the Granite Bay Activity Center runs along a portion of the crest of Dike 3 before turning eastward toward the Activity Center. Constructing a new Dike 3 and the south end of Dike 2 would temporarily close a portion of the Activity Center access road. However, a temporary detour road would be built prior to construction activities that force road closure. This detour road, shown in Figure 3-3 below, would extend from the south end of the Granite Bay Main

Beach parking lot to the segment of the Activity Center access road that would not be disturbed (portion east of the south end of the detour). To reach the Activity Center, users would have to drive through the Main Beach parking lot to the subject detour road. Temporary signs would be installed at appropriate locations to help guide traffic to the temporary detour road/access route. Upon completion of raising Dike 2 and the new Dike 3, the detour road would be removed and restored to pre-project conditions (see Mitigation Measure R-2 and R-4 in Table 2-4 in Appendix A).

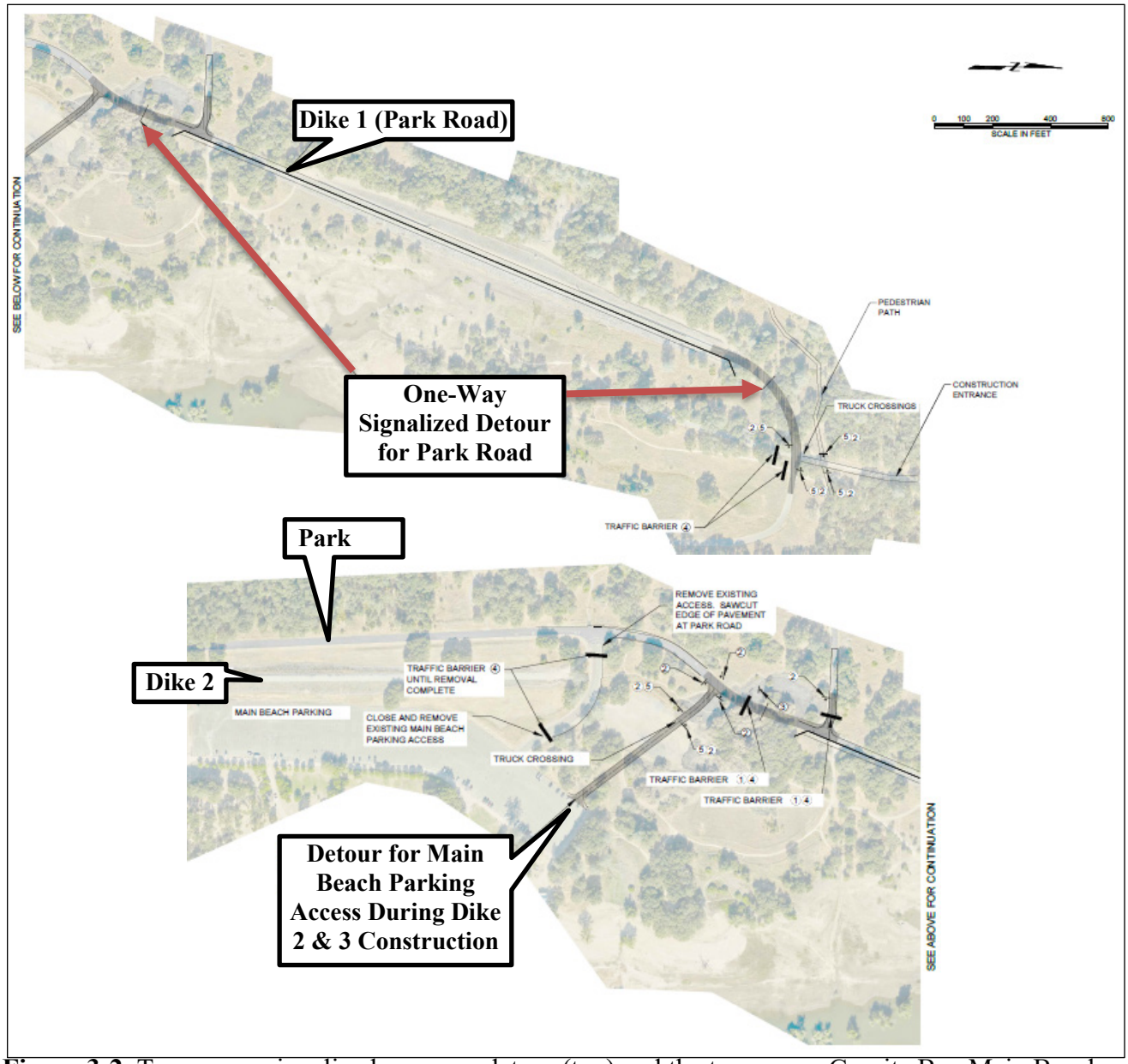

Figure 3-2. Temporary signalized one-way detour (top) and the temporary Granite Bay Main Beach access detour (bottom) that would be employed during construction of Dikes 1, 2, and 3. Detour alignments shown are approximate.

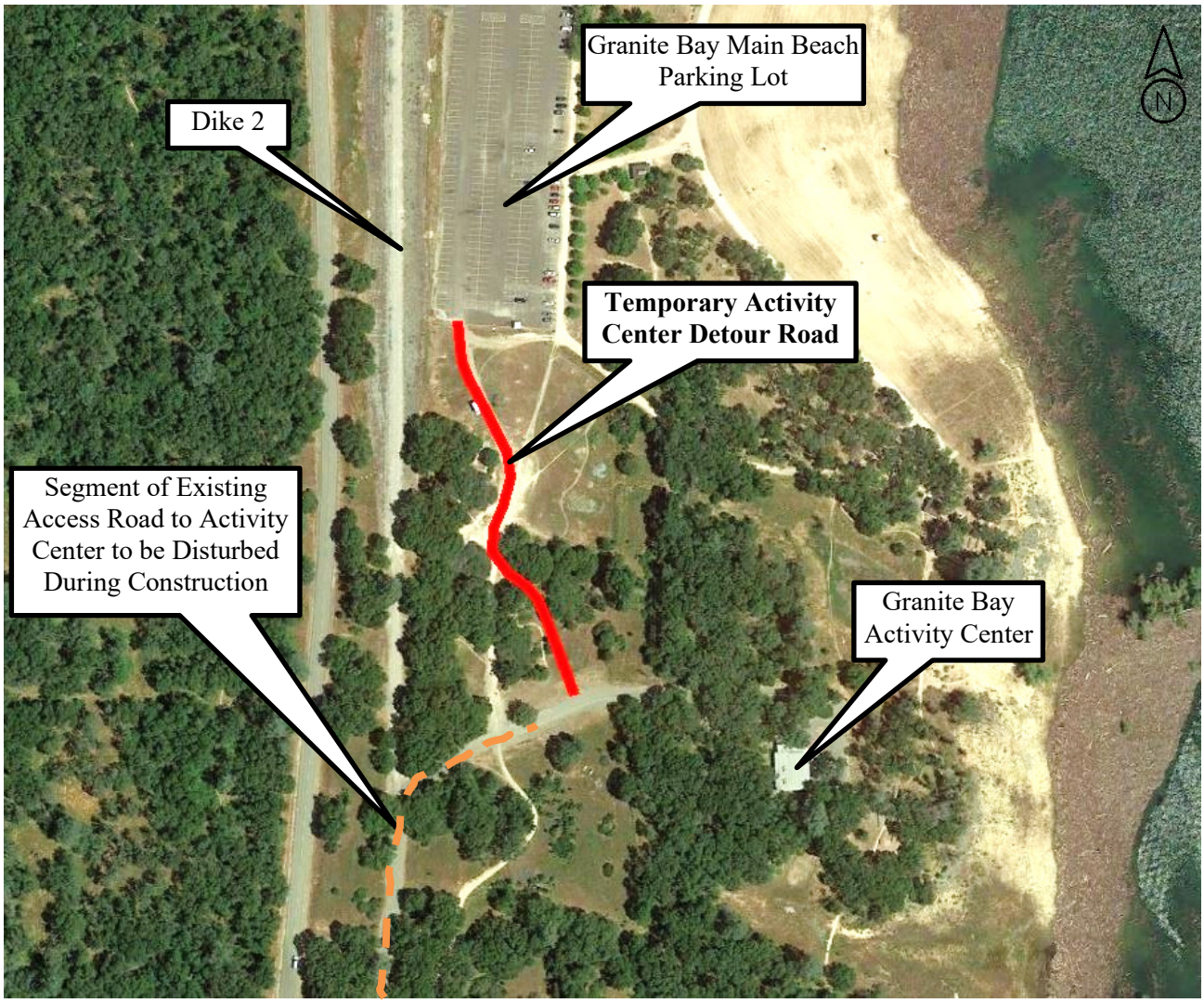

Figure 3-3. Proposed temporary Granite Bay Activity Center detour road alignment.

The Granite Bay Boat Ramp Complex is located east of Dike 3 and vehicular access to this complex is provided via two roads extending east from Park Road. The northern access road, which leads to the northern-most portion of the Boat Ramp Complex, would need to be closed during the process of constructing the west end of this road and the new Dike 3. The southern access road would not require raising and would not need to be closed during the raising of Dikes 1 and 2 and construction of the new Dike 3. This southern access road connects to an existing north/south road that connects to all portions of the Boat Ramp Complex. Because of this, no temporary detour road would be necessary to maintain public access to the complex during project construction. To help direct people to the single access road that would serve the complex during construction, temporary signs would be installed at appropriate locations (see Mitigation Measure R-2 in Table 2-4 in Appendix A).

During construction of Dikes 1, 2, and 3, including establishment and use of construction staging areas, access to various existing trails or portions thereof would be temporarily closed. One of the primary trails in the Granite Bay Recreation Area is the Granite Bay Multi-Use Trail (GBMUT), portions of which run along the east side of the dikes. Figure 3-4 shows the GBMUT system and trail

segments that would be temporarily closed for roughly 2 years. As indicated in this figure, temporary detour routes would be provided for many of the closed trail segments (see Mitigation Measure R-4 in Table 2-4 in Appendix A). In regard to the trail segment that would be closed near Dike 1 (near north portion of Boat Ramp Complex), trail users would have to detour along the east side of the parking lot. Some GBMUT trail users could also opt to use the Pioneer Express Trail (Figure 3-4) rather than the GBMUT; however, bicycles are not allowed on the Pioneer Express Trail whereas they are allowed on the GBMUT. Prior to closing trail segments, temporary signs would be installed at various locations to advise trail users of closed segments (closed segments would also have temporary barricades where needed) and guide them to detour routes (see Mitigation Measure R-2 in Table 2-4 in Appendix A). Any existing trail segments damaged or destroyed by project construction activities would be restored at the end of this phase of the proposed project (see Mitigation Measure R-9 in Table 2-4 in Appendix A).

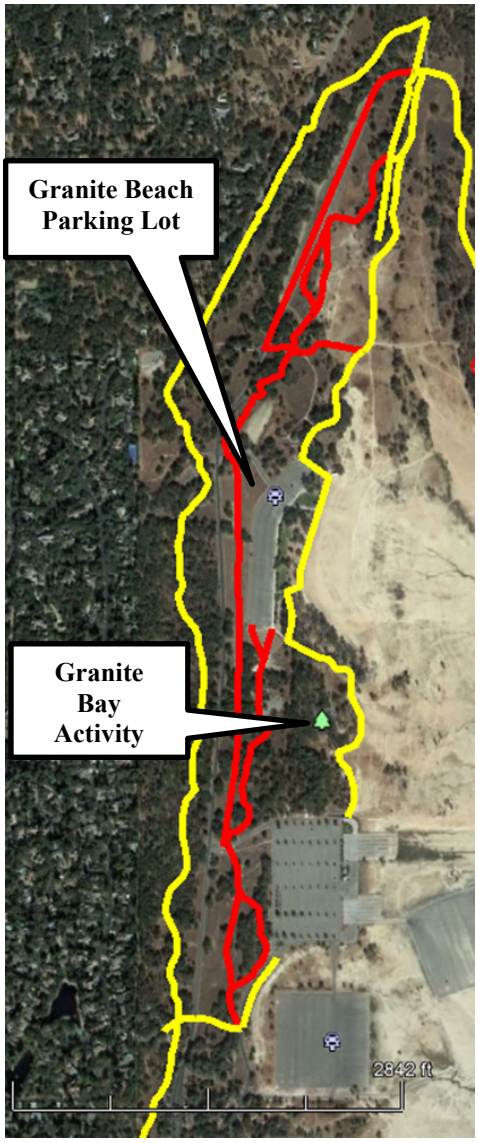

Figure 3-4. Project impacts to Granite Bay Multi-Use Trail system. Detour trails are in yellow, trails that will be temporarily closed during construction are in red.

Beal's Point Area

The main construction access route that would be used during the raising of Dikes 4, 5, and 6 would be via Auburn Folsom Road near the north end of Dike 5, then entering the FLSRA along an existing unnamed road that is not open to public access (Figure 2-14 in Section 2.3). A secondary construction access to these dikes could be from Auburn Folsom Road, then entering the FLSRA on Beal's Point Road (the public entrance to the Beal's Point portion of the FLSRA). Use of this route would be restricted to emergency access and to instances when project construction equipment is too large to access the project site using the main access route or similar circumstances. The USACE and/or the construction coordinator would coordinate with State Parks' Folsom Sector Superintendent prior to use of this secondary construction access route (see Mitigation Measure R-8 in Table 2-4 in Appendix A).

The trail that runs along the top of Dikes 4, 5, and 6 is heavily utilized by pedestrians, bicyclists, and equestrians. This trail would be closed to the public for up to 2 years for the duration of construction of the concrete floodwall raise of the three dikes. A complex network of dirt trails is present on the landward side of Dikes 4, 5, and 6 (Figure 3-5 below). Due to the location of proposed staging areas and construction access routes associated with this phase of the proposed project, several of these dirt trails or segments thereof would also be closed to the public during construction of this project phase. To help minimize the effects of trail closures, a dirt detour trail would be kept open to public use during project construction (see Mitigation Measure R-3 in Table 2-4 in Appendix A). The approximate location and alignment of this detour trail is shown in Figure 3-5. Prior to closing access to the existing trail on Dikes 4, 5, and 6, the detour trail would be repaired as necessary to correct deficiencies and help make it ready for increased usage. Where the detour trail passes through the proposed large staging area west of Dike 5, the alignment of the existing trail would be adjusted by the construction contractor to minimize interference with staging area uses and facilities. This segment of the detour trail would be protected from adjacent work by installing fencing or similar barriers along each side of the trail. The contractor would employ a traffic control plan to help ensure the safety of trail users where the trail would cross access/haul roads that pass through this staging area.

Temporary signs and barricades would be installed on segments of existing trails to be closed during the raising of Dikes 4, 5, and 6 (see Mitigation Measure R-2 in Table 2-4 in Appendix A). Temporary signs would also be installed at key locations along or near certain existing trails to help guide users to the temporary detour trail. These signs and barricades would be removed upon completion of this project phase and construction damage to existing trails would be repaired where warranted.

The Beal's Point RV Campground is located immediately west of the southern half of Dike 6. Five campsites within this campground are situated near the western toe of Dike 6. State Parks staff reported that during past Reclamation repairs to Dike 6, a few riprap boulders rolled down the landward side of Dike 6 and came close to impacting the nearest campsites. To guard against this possibility (though remote) during the raising of Dike 6, the construction contractor would install Jersey barriers (concrete K-rails) adjacent to but outside of the eastern boundary of the subject campground (see Mitigation Measure R-7 in Table 2-4 in Appendix A). These barriers would be removed once construction of this phase of the Folsom Dam Raise project is completed.

Construction work during the raising of Dikes 4 through 6 would expose users of the Beal's Point RV Campground to substantially increased noise levels compared to existing ambient conditions. As discussed in Section 3.3.7, construction work at Dike 6 would be limited to 7am to 6 pm on weekdays with no work on weekends (see Mitigation Measure N-2 in Table 2-4 in Appendix A). This reduced work schedule would help minimize exposure of campers to construction noise but would not eliminate this exposure.

Figure 3-5. Temporary trail detour for Dikes 4, 5, and 6.

Folsom Point Area

Dike 7 and MIAD would be closed for approximately 2 years during construction. An existing FSLRA trail runs along the top of MIAD, connecting to the Folsom Point day use area on its west

end, and connecting to the Browns Ravine trail on its east end. Due to the widespread nature of construction activities planned for the MIAD area, the trail that runs along the top of MIAD would be closed for construction and no detour would be provided to ensure public safety. However, signs would be posted before construction activities begin to warn the public of restrictions and provide the public with alternative routes (see Mitigation Measure R-2 in Table 2-4 in Appendix A). An existing trail parking lot, called the Mormon Island Cove Parking Area (MICPA), is located near the east end of MIAD (Figure 2-15 in Section 2.3). Current design plans indicate the gravel MICPA would be used as construction staging during the raising of MIAD. The MICPA would be restored once project construction activities are completed.

As there presently is no public access along the crest of Dikes 7, a trail detour would not need to be established. A concrete floodwall on the top of the LWD and RWD would have no impact to recreation because these areas are not publicly accessible.

A small segment of Folsom Point Road may be used for construction access to MIAD and Dike 7, but it would remain publicly accessible during construction with the use of proper signage, traffic control measures, and public education (see Mitigation Measures R-1 and R-2 in Table 2-4 in Appendix A). Construction traffic would only travel on the southern-most 440 feet of Folsom Point Road before turning west into the Dike 8 area. The existing O&M Bench road, created during the process of restoring areas disturbed by the Folsom JFP, intersects Folsom Point Road south of the Folsom Point boat ramp parking lot. Folsom Dam Raise construction traffic would use the O&M Bench road during the raising of Dike 7 and MIAD, thus this traffic would have to cross Folsom Point Road. The traffic control plan developed for this phase of the Folsom Dam Raise Modifications project would include the use of warning signs near this intersection and flaggers to direct construction and non-construction traffic (see Mitigation Measure R-2 in Table 2-4 in Appendix A). Whenever feasible, construction traffic on the O&M Bench road would be required to yield to public traffic on Folsom Point Road.

General FLSRA/Recreation Impacts

Because trail detours would be maintained or established as necessary, it is unlikely that the project would increase the use of other nearby recreational facilities to the point that substantial physical deteriorations of the facilities would occur or accelerate. It is also unlikely that trail detours would have a significant adverse effect on the surrounding environment.

With the exception of the tops of the dikes and dams, the MIAD area, as well as the staging areas, all existing recreational areas near the construction areas would remain accessible to the public. Because of the trail detours and other recreational opportunities in the area, it is assumed that the majority of the recreation activity would not change and that most recreation users would continue to visit the FLSRA and use the trails. Once construction has been completed, the tops of the dikes would again become publicly accessible.

The roadway detours required in the Granite Bay area could lead to additional traffic congestion within this portion of the FLSRA during the portion of the project involving Dike 1 floodwall construction, Dike 2 raise, and construction of the new Dike 3. Use of Folsom Point Road as a construction access route during the project phase involving raising of Dike 7 and MIAD could also temporarily increase traffic congestion on this road.

During construction of the proposed project involving raising the dikes and MIAD, some people may elect to not visit affected FLRSA areas or may reduce the frequency of their visits for a variety of reasons. For example, this could be the case at the Granite Bay area due to construction noise, increased traffic congestion, and closure of certain trail segments. Visitors could be deterred from using the Beal's Point area due to the temporary closure of the trail along Dikes 4, 5, and 6, and people may avoid using the Folsom Point area due to construction traffic issues on Folsom Point Road or due to the temporary closure of the trail that runs on the top of MIAD. Any reduced public use of FLSRA facilities during project construction would also result in a reduction of usage fees paid to State Parks. Concessioners operating in the Granite Bay and Beal's Point areas could also experience reduced income if the project results in a temporary decline in public use.

The direct effects to recreation as a result of the implementation of this Alternative 2 (the proposed project) are considered significant because these would result in a severe restriction to recreational facilities and resources due to a substantial disruption of existing recreation facility usage ranging from 18 months to two years depending on the location of the construction. All trails in the FLSRA, including those on Dikes 1 through 6 and MIAD, are used extensively throughout the seasons. Existing trails on Dikes 1 through 6 and MIAD accommodate pedestrian, bicycle, and equestrian users. Additionally, these trails are approximately 20 feet wide and allow for many people to use them at once. Although trail detours would be accessible, these detours would not offer the same level of service as the paved roads and aggregate roads on the tops of the dikes and MIAD, and are not suitable for all types of recreation users. This would lead to both direct and indirect effects to those users who might choose to no longer recreate on the trails. Additionally, the creation of new trails would have the potential to cause adverse physical effects on the environment. Some trail users may decide to make their own trails or use trails not designated for their type of recreation. This can lead to both direct and indirect effects due to environmental impacts and may cause conflicts on existing trails leading to a potential increase of calls for service by the State Park Rangers, or the increased chance of accidents on unsanctioned trails.

The project would have significant temporary impacts on recreational resources, similar to the impacts reported in the 2017 SEIS/EIR. Implementing Mitigation Measurers R-1 through R-11 in Table 2-4 in Appendix A would reduce impacts, but not to a less-than-significant level. These temporary impacts would therefore be significant and unavoidable. Following completion of construction, the existing FLSRA recreation facilities adversely altered or damaged as a result of project construction work would be restored by the construction contractor. Consequently, the proposed project impact would less than significant on recreational resources given the implementation Mitigation Measure R-9 in Table 2-4 in Appendix A.

3.3.1.5 Recreation: Avoidance, Minimization, and Mitigation Measures

The following mitigation measures are required to reduce recreation impacts. All the Mitigation Measures referenced (R-1, R-2, etc.) are summarized in Table 2-4 in Appendix A.

To ensure public safety, warning signs and signs restricting access would be posted before and during construction as necessary. Public outreach would be conducted through mailings, posting conspicuous signs, coordination with interested groups, and meetings, if necessary, in order to provide information regarding changes to recreational access in and around Folsom Lake. The detours, traffic

control measures, access restrictions, increased signage, increased education, and public outreach would help mitigate effects to recreational users of the FLSRA. (R-1).

Although contractor staging and material stockpiling would emphasize use of areas with no or limited current public access and away from residential areas, there may be temporary impacts to recreation access. The construction contractor would be required to: (1) Utilize traffic control measures, security fencing and/or temporary alternate public access detours for pedestrian, equestrian, bicycle and vehicular traffic; (2) Post warning and restricted access signs before and during construction as necessary. (R-2).

Prior to concrete floodwall construction at Dikes 4, 5, and 6, a temporary detour trail would be established to help mitigate the temporary loss of the existing trail/roadway that runs along the crest of the dikes. This detour trail would largely make use of an existing trail that would be repaired/modified, as necessary, prior to its usage as the detour route. (R-3).

A temporary detour road would be built to serve as the entry to the Granite Bay Main Beach parking lot prior to closing the existing entry road for project construction purposes. In addition, a temporary detour road to the Granite Bay Activity Center would be built prior to closing a segment of the existing access road for project construction purposes. These temporary roads would be removed once they are no longer needed (R-4). The raising of the access road to the Granite Bay Horse Assembly Area would be prioritized for rapid completion to minimize the time this access road must be closed for project construction (R-5). Additionally, prior to the construction of the Dike 5 access, a temporary detour trail would be established west of the currently existing trail (R-6).

To help prevent large rocks or similar objects from possibly rolling into the Beal's Point RV Campground during the raising of Dike 6, concrete Jersey barriers (K-rails) would be installed adjacent to the east side of this campground. These barriers would be removed once the dike raise has been completed (R-7).

The existing public entrance from Douglas Blvd. to the Granite Bay recreation area would be used as the primary entrance and exit for Dikes 1-3 construction. However, haul trucks and other large construction equipment would be limited to using the Douglas Blvd. entrance to times of the year and times of day when recreational usage is at a minimum. Project construction traffic would not use the main public entrance to the Beal's Point recreation area except for special circumstances (ex. emergency access, hauling equipment that cannot access the project sites by the main construction access roads, etc.). Any use of the main public entrances cited would be coordinated with State Parks Folsom Sector Superintendent (R-8).

Existing FLSRA recreation facilities that are adversely altered or damaged because of project construction work would be returned to their pre-construction condition near the end of construction (R-9). There would be some exceptions to restoring affected facilities to their "pre-construction" condition. For example, trails/roads along the crests of the dikes would be restored but the restored trails/roads would not match their pre-construction condition because they would be higher than they are now or would have a concrete floodwall on the lake side of the crest. Improvements made to correct deficiencies in existing trails that will be used as detour trails would not be converted back to the deficient conditions. Paved roads and parking areas damaged during project construction would be appropriately repaired by the construction contractor; however, such repairs would be limited to

damages that can be documented as being a direct result of project construction activities rather than damages caused by other sources (R-10).

For water pumped from Folsom Lake for construction, the contractor would provide buoys to prevent the public from being within 20 feet of the pump intakes and would secure pumps using minimum 6-foot-high chain-link fencing (R-11).

Mitigation Measurers R-1 through R-11 would reduce but not eliminate significant but short-term project impacts during construction. Following completion of construction, the existing FLSRA recreation facilities adversely altered or damaged because of project construction work would be restored to their previous condition by the construction contractor (Mitigation Measure R-9 in Table 2-4 in Appendix A). The long-term impacts to recreation would be less than significant with mitigation.

3.3.2 Vegetation and Wildlife

3.3.2.1 Vegetation and Wildlife: Environmental Setting

Regulatory Setting

The following Federal, State, and local laws and regulations apply to the resources covered in this section. Descriptions of laws and regulations can be found in Chapter 5.0.

Federal

- Executive Order 13112, Invasive Species
- Fish and Wildlife Coordination Act (FWCA) (16 USA §§661 – 667e)
- Migratory Bird Treaty Act (16 USC §§703-712)

Local

- Sacramento County Tree Preservation and Protection Ordinance, Chapter 19.12, Tree Preservation and Protection: This ordinance regulates the removal or disturbance to all species of oak trees native to Sacramento County. These species include valley oak (*Quercus lobata*), interior live oak (*Quercus wislizeni*), blue oak (*Quercus douglasii*), oracle oak (*Quercus x moreha*), and black oak (*Quercus kelloggii*). The ordinance applies to any native oak tree. Typically, only trees 6 inches in diameter at breast height (dbh), or greater, are protected.

Existing Conditions

Vegetation

Assessment of existing vegetation associations and habitats was made through limited field observations, interpretation of recent aerial photography, and review of past vegetation/land use mapping generated by others that covers the majority of the area encompassing the proposed project. The past vegetation/land use mapping reviewed consisted of vegetative delineations conducted by the Northern Sierra Nevada Foothills Project (NSNFP; Klein *et. al*, 2007), habitat/land use mapping prepared by State Parks staff (State Parks, 2010), and vegetation/land use/wetlands mapping

contained in the 2007 EIS/EIR and 2017 SEIS/EIR.

The immediate project area currently supports the following main vegetation associations/habitat types; oak woodland, oak savanna, riparian woodland, lake (lacustrine), developed/disturbed areas, and annual grassland. A detailed discussion of these vegetation associations/habitat types can be found in Section 3.4.1 of the 2017 SEIS/EIR.

Waters of the United States

Jurisdictional Waters of the United States (WOUS) include waterbodies and watercourses such as lakes, ponds, rivers, and streams. WOUS also include wetlands. For regulatory purposes, wetlands are a subgroup of WOUS defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support hydrophytic vegetation, and that under normal circumstances, support a prevalence of vegetation typically adapted for life in saturated conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR Section 328.3; 40 CFR Section 230.3). Folsom Lake is a jurisdictional WOUS, with its jurisdictional boundary corresponding to the lake's OHW elevation of 468.34 feet NAVD88. Those portions of the proposed project that could potentially affect lacustrine habitats (i.e. Folsom Lake) could therefore also potentially affect WOUS.

The USFWS performed a wetland delineation encompassing Dike 1 and limited areas on either side of this dike. The report documenting this delineation is contained in Appendix A of the 2017 SEIS/EIR. While this delineation identified 10 separate "wetlands" near Dike 1, nine of these wetlands (those coded as SW001 through SW007, SW009, and SW008) should not have been classified as wetlands since they all are located within the jurisdictional boundary of Folsom Lake and thus are merely vegetated areas within the lake itself. One small, vegetated wetland designated as SW010 and occupying 0.04 acre was delineated just east of the northern end of Dike 2. Besides Folsom Lake itself, the report identified another jurisdictional WOUS just west of the central portion of Dike 1. This feature, designated as SW008 and occupying 0.01 acre, is a drainage swale dominated by hydrophytic vegetation.

The USFWS also performed a wetland delineation encompassing Dikes 4, 5, and 6 along with additional lands on the west (landward) side of the dikes and on the east (water/lake) side of the dikes. The report documenting this delineation is also contained in Appendix A of the 2017 SEIS/EIR. This delineation identified 2 seasonal wetlands located near the center of Dike 5 on its west side: wetland WM012 (approximately 0.07 acre) and wetland WM013 (approximately 0.02 acre). More recently, USACE is performing a wetland delineation on both sides of Old Country Road near Twin Rocks Road for a culvert that would be replaced to ensure adequate access to the construction sites from Twin Rocks Road. The wetland delineation also included a small segment of proposed haul road at the water side toe of Dike 1 that would be below the OHWM but in the dry.

A jurisdictional WOUS delineation that encompassed essentially all of the features of the proposed project plus additional areas near these features was performed in 2006, as documented in Appendix C of the 2007 EIS/EIR. This delineation did not locate any jurisdictional wetlands that could be directly affected by the proposed project, with the exception of a relatively small wetland located on the landward side of MIAD near its western end. The current remnant of this wetland coincides with the riparian woodland area previously discussed. It is noted that the subject delineation

also mapped a jurisdictional drainage ditch, small open water area, a small freshwater marsh wetland, and another small "riparian" wetland on the landward side of MIAD close to Green Valley Road. However, all these areas were reportedly eliminated during the course of making various improvements to MIAD (Reclamation, 2010).

Wildlife and Habitat

See Section 3.4.1 of the 2017 SEIS/EIR for a detailed discussion of wildlife and habitat.

3.3.2.2 Vegetation and Wildlife: Environmental Effects

Basis of Significance

Direct and indirect effects on vegetation and wildlife would be considered significant if the alternatives result in any of the following:

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial reduction in the quality or quantity of important habitat with the result that native wildlife could not live or successfully reproduce in the project area.
- Interfere substantially with the movement of any native wildlife species (habitat connectivity) or with established native resident or migratory wildlife corridors.
- Conflict with any local, state, or federal policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Substantial effects on a sensitive natural community, including Federally protected wetlands and other jurisdictional Waters of the U.S. as defined by Section 404 of the CWA.

3.3.2.3 Vegetation and Wildlife: Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR. The construction-related effects to all existing vegetation and wildlife would be less than significant with mitigation.

3.3.2.4 Vegetation and Wildlife: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

The "footprint" (e.g. the limits of construction or direct impact) of each of the elements of the proposed project were superimposed on vegetation/habitat mapping to determine the extent of potential direct project impacts to the various vegetation associations and habitats previously discussed. Table 3-1 below contains the results of this evaluation.

It is important to understand that the potential impact acreages indicated for the project's dams

and dikes are typically much greater than what the actual acreages would likely be. This is because, to be conservative, the impact footprint of a given dam or dike commonly included the full extent of the feature, plus an additional 50-foot buffer extending beyond the limits of the feature. In actuality, the proposed improvements to the dikes and dams would directly affect roughly 30 percent of the full extent of a particular dike or dam, if not less in some cases. In contrast, the potential direct impact acreages indicated for the project's staging areas were based on the actual proposed boundaries of these areas without any buffers.

Table 3-1. Approximate extent (acres) of existing vegetation associations/habitats located within the potential direct impact "footprint" of the proposed project.

Vegetation Associations (Habitats)	Dams & Dikes*	Staging Areas*	Stockpile Areas*	Total Area	Estimated Mitigation
Developed/Disturbed	157.2	66.4	0.9	**224.5**	**0**
Lake (Lacustrine)	57.4	0	0	**57.4**	**0**
Annual Grassland	14.8	52.1	3.4	**70.3**	**30.1**
Oak Woodland	18.3	4.8	15.6	**38.7**	**23.6**
Oak Savanna	1.3	1.2	0	**2.5**	**0**
Riparian Woodland	0	2.2	0	**2.2**	**0**
Totals	**244**	**126.7**	**19.9**	**395.6**	**53.7**

Note: *Acres Within Proposed Project "Footprint"
Acreages indicated for "dams & dikes" are those within the footprints of the existing dams and dikes themselves, plus a buffer of roughly 50 feet around the limits of these features. Acreages indicated for "staging areas" are those within the limits of the proposed construction staging areas. The "Estimated Mitigation" is the number of acres that may require mitigation such as planting native grasses and forbs or oak trees. The habitats (vegetation associations) listed were based on those present in early 2021.

Over 57 percent of the total area that could be directly impacted by proposed construction would consist of existing developed/disturbed areas. Direct impacts to such areas would not significantly or adversely affect wildlife habitat or native plant communities since these areas are already heavily disturbed with highly limited habitat values and the remaining vegetation, where present, is widely scattered and not representative of natural conditions. There would be no substantial change to existing conditions in these developed/disturbed areas, as regards wildlife/habitat qualities, following completion of the proposed project.

Roughly 15 percent of the total potential impact area would consist of portions of Folsom Lake (e.g. lacustrine habitat). While roughly 57.4 acres of lake habitat falls within the conservative construction footprints of the proposed dike and dam alterations, this acreage is overestimated, and the proposed construction work would not result in a truly measurable loss of lake acreage or volume as none of the proposed construction would be below the lake's ordinary high water elevation.

Project construction could directly affect up to 70.3 acres of annual grassland, or approximately 18 percent of the total area within the project footprint. Most of the existing vegetation, excluding any native trees present, would be removed, destroyed, or damaged in these grasslands during construction, thereby severely degrading the affected habitat. It is highly likely that very little of the 14.8 acres of annual grassland indicated in Table 3-1 as being within the "footprint" of dams and dikes would be directly impacted by the proposed project. Those limited areas that are actually

disturbed during the raising of dikes (no annual grasslands would be directly impacted by proposed improvements to the main dam, LWD, RWD, and MIAD) would likely be permanently lost. However, direct impacts to annual grassland habitats within the proposed staging areas (total of approximately 52.1 acres) would only be temporary. As previously discussed, heavily disturbed portions of the staging areas would be restored to mimic pre-construction conditions as the final stage of construction in a given project phase (MM VW-9). This restoration would include hydroseeding the affected areas with a mixture of native grasses and forbs. Most of the 15.6 acres in the stockpile areas would be replanted with oak trees as part of the project mitigation plan.

Revegetated areas would be monitored for invasive plant species by USACE staff during the construction contract warranty period of a given project phase. The term invasive plant species refers to those plants listed in the California Invasive Plant Inventory database generated by the California Invasive Plant Council and having an invasive rating of "high" or "moderate". If it is determined invasive plants are becoming established, such plants would be eradicated by the construction contractor through directed herbicide applications, physical removal, or both. The goal would be to control invasive plant species such that they account for 5 percent or less of the average total plant cover (MMs VW-9 and VW-10).

The proposed project could directly affect up to 38.7 acres of oak woodland habitats, with approximately 18.3 acres of this total attributable to the dam and dike improvements and the remaining 4.8 acres attributable to work in the staging areas and 15.6 acres attributed to work in the stockpile areas. The proposed project would result in the permanent loss of some oak woodland habitats.

A total of approximately 2.5 acres of oak savanna habitat could be directly affected by the proposed project. However, due to changes in design since the 2017 SEIS/EIR, no losses of oak savannah are anticipated.

USACE has determined that approximately 12.3 acres of existing oak woodland habitat would be eliminated (destroyed) due to construction activities. Consequently, USACE has developed a mitigation plan to compensate for these losses (MM VW-5). Compensatory mitigation would involve creation or restoration of the affected habitat types (vegetation associations). The minimum ratio of the acres of each type to be restored or created per acre of each type lost would be 1.2:1. Therefore, approximately 14.8 acres of oak plantings are required for mature trees that would be removed. In addition, the borrow and disposal at MIAD West would disturb approximately 8.8 acres of existing oak plantings which would be replaced at a 1:1 ratio because all of the plantings are less than 1 inch in diameter. Therefore, the total acreage of oak plantings needed for mitigation would be approximately 23.6 acres. The mitigation goal would be to create or restore habitat where the density of canopy tree species and midstory woody species is approximately the same as the average density of canopy tree species and midstory woody species found in the impacted habitats. The ground cover stratum would be restored through the planting of various native grasses and forbs, while the species composition of the midstory and canopy strata would strive to mimic that of the affected habitats. The mitigation sites have been selected in coordination with USFWS, DWR, SAFCA, State Parks, and Reclamation. The overall mitigation plan has also been prepared in coordination with these agencies.

Table 3-1 indicates that use of the proposed staging areas would be near approximately 2.2 acres of riparian woodland. The single riparian woodland within the project footprint is located near

the staging area just south of MIAD. This habitat would be completely protected and preserved during project construction; hence, there would be no loss of riparian woodland habitats.

It is anticipated that most animals that frequent areas that may be directly impacted by construction of a given project phase would move elsewhere at the onset of construction of that phase. However, it is possible that a few animals that use burrows in these areas and some slow-moving animals that do not flee the areas at the start of construction could be injured or killed by earthwork activities and perhaps construction traffic. Similarly, any animals using the many areas existing riprap along the side slopes of the dikes and MIAD could be harmed or killed during the course of removing riprap (removal of limited riprap areas is necessary before building the raised portions of dikes and MIAD). If any active bird nests must be removed, the young occupying removed nests (whether eggs or chicks) could perish in some cases. The potential for this would be minimized by taking chicks and viable eggs to a wildlife care facility where the facility would attempt to nurse the young until they can be safely released.

Disturbance caused by staging and construction activity, noise, traffic, and possibly night lighting is expected to displace wildlife species through the four-year project construction period from 2022 to 2025. Interference with lake access by terrestrial mammals would occur for intermittent periods during this same period. Loss of remaining woodland habitats would reduce habitat cover and connectivity used to access summer and fall water sources by terrestrial wildlife populations. The duration of construction-created disturbances would be overlapping and continuous. However, the disturbance areas would be separated sufficiently from a geographic standpoint that the overlapping periods of disturbance would have little meaning as regards potential adverse impacts to wildlife.

Due to the fragmented nature of remaining oak woodland habitats, Alternative 2 (the proposed project) has a disproportionate potential to significantly impact remaining habitat connectivity by the removal of additional woodland. Permanent loss of even relatively small acreages could be significant to local wildlife populations for access, connectivity, breeding, and foraging. In the vicinity of the proposed project, the remaining natural terrestrial habitats exist only as a relatively narrow band adjacent to Folsom Lake, with the width of this band varying from as little as 150 feet to as much as roughly 2,400 feet. Because of this, these habitats are substantially more vulnerable to anthropogenic impacts than a configuration supporting greater interior habitat area and wildlife cover. The magnitude of project-caused disturbance would be proportionally higher as a result of the linear configuration of natural terrestrial habitats and due to lack of habitat continuity outside the project boundaries for cover, escape, or alternate use. As a result, because the habitat configuration is constrained and remaining acres are low, habitat can be significantly impacted by incremental acreage losses.

During project construction, there would be a substantial reduction in the quality of important habitat, substantial degradation of certain natural vegetation associations and wildlife habitat, and some interference with the movement of terrestrial wildlife species. These effects would be minimized somewhat through some of the mitigation measures outlined in Section 3.3.2.5. Most of these effects would also be temporary, being limited to the period of construction. There would be no long-term loss of annual grasslands, since disturbance to these grasslands would be mitigated by seeding with native grasses and forbs, but there would likely be a permanent loss of limited acreages of oak woodland habitats. These losses would be mitigated through compensatory mitigation involving creation or restoration of similar habitats, as described in Section 3.3.2.5. Following

completion of project construction, there would be no substantial fragmentation or long-term degradation of habitats. The proposed project would not affect natural habitats to the point that native wildlife presently utilizing such habitats could not live or successfully reproduce in the project area. Following completion of construction of a given project phase, the improved dikes and dams would not interfere with the movement of wildlife species any more than these man-made features presently interfere with such movement, and wildlife corridors/habitat connectivity would not be appreciably degraded.

The proposed project would not conflict with any local, state, or federal policies or ordinances protecting biological resources. Note that Sacramento County's tree protection ordinance is not applicable to the project since this ordinance only applies to unincorporated portions of the county and work to be completed within the county limits are within the boundaries of the City of Folsom. The proposed project would also not substantially affect sensitive natural communities. The only "sensitive natural communities" present within or immediately adjacent to the project footprint are wetlands and riparian woodlands (which would be protected and preserved) and, since it classifies as a jurisdictional WOUS, Folsom Lake. While the project could have temporary direct impacts to Folsom Lake, such impacts would be less than significant and BMPs (mitigation measures) discussed in Section 3.11.5 (Water Quality) would help avoid and minimize temporary impacts.

Substantial loss, degradation, or fragmentation of natural communities or wildlife habitat is avoided by designs that are mostly in disturbed areas of the existing dikes. Impacts to the quality or quantity of important habitat are reduced or mitigated with the Mitigation Measure and on-site mitigation plantings. Similarly, habitat connectivity would not be substantially impacted with the inclusion of Mitigation Measures and on-site mitigation. The Proposed Project complies with local, state, and federal ordinances and policies, see Chapter 5 for detailed discussions. Sensitive natural communities would be avoided or mitigated according to the Mitigation Measures, BMPs, and applicable laws. Given the considerations above, the proposed project's impacts to vegetation and wildlife resources would be reduced to less than significant through the implementation of the Mitigation Measures VW-1 through VW-12 and related Mitigation Measures LS-1 through LS-4, LS-14, LS-15, WW-1 through WW-17, and AQ-1 through AQ-3 in Table 2-4 in Appendix A. The habitat impact acreage is 12.4 acres less than the Proposed Project from the 2017 SEIS/EIR but the impacts are still similar in significance to vegetation and wildlife.

3.3.2.5 Vegetation and Wildlife: Avoidance, Minimization, Mitigation Measures, and Project Mitigation Plan

The following avoidance, minimization, and mitigation measures would be employed to help ensure the project's long-term impacts to vegetation and wildlife resources are less than significant. All Mitigation Measures (VW-1, VW-2, etc.) correlate with those described in Table 2-4 in Appendix A.

- To minimize dust impacts to vegetation, wetlands, and wildlife, dust control measures consistent with SMAQMD fugitive dust control measures would be implemented by the construction contractor (VW-1).

- To help prevent importation of invasive plants and animals, the construction contractor would be required to thoroughly clean vehicles and equipment before first entering the project site (VW-2).

- For each phase of the project, the USACE would prepare final construction plans that would include drawings identifying habitat areas, including wetlands, that must be protected and specifying the methods of protection (e.g. installation of fencing or similar physical barriers, posting of signs, etc.). These plans would also illustrate and/or describe those areas/lands near the project features that are outside the limits of construction (and thus are protected from direct construction impacts). The final construction plans would be accompanied by written project specifications further detailing the habitat protection requirements, as well as general requirements concerning the protection of vegetation and wildlife (VW-3).

- Native trees and shrubs having a DBH of 2 inches or greater located within the limits of construction of a particular project phase would be preserved to the extent practicable. The construction contractor would establish protective buffers (e.g. temporary fencing) around the driplines of those trees and shrubs to be preserved that are located within the limits of construction. Native trees and shrubs located outside the limits of construction would be preserved. The construction contractor would also erect protective buffers along the limits of construction where these limits are near the adjacent trees and shrubs to be preserved. Any required trimming of native trees or shrubs would be conducted by, or under the direct supervision of a certified arborist (VW-4).

- The USACE has determined that approximately 12.3 acres of oak woodland habitat would be eliminated as a result of construction activities. Consequently, the USACE has developed a mitigation plan to compensate for these losses. Compensatory mitigation would involve creation or restoration of the affected habitat types. The minimum ratio of the acres of each type to be restored or created per acre of each type lost would be 1.2:1. The mitigation ratio for oak plantings at MIAD West would be 1:1. The mitigation goal would be to create or restore habitat where the density of canopy tree species and midstory woody species is approximately the same as the average density of canopy tree species and midstory woody species found in the impacted habitats. The ground cover stratum would be restored through the planting of various native grasses and forbs, while the species composition of the midstory and canopy strata would strive to mimic that of the affected habitats. The restored areas would be managed and monitored by the USACE (or the USACE contractor) for 5 years, although this period could be reduced to 4 years if success criteria are achieved by that time. The mitigation site(s) and overall mitigation plan would be selected in coordination with USFWS, DWR, SAFCA, Reclamation, and State Parks (VW-5). A more detailed description can be found in the Project Mitigation Plan section below.

- Project impacts to migratory birds, including bald eagles, Swainson's hawks, white-tailed kites, and Peregrine Falcons would be avoided or minimized to the degree practicable by following the avoidance, minimization, and mitigation measures set forth in Section 3.3.3 for such species (VW-6).

- The USACE would ensure that all construction personnel undergo environmental protection training to be aware of all required environmental protections (bird, wildlife, and vegetation/habitat protection) per the final construction plans and specifications, as well as those required by applicable federal and state laws (VW-7).

- The construction contractor would be required to place food-related wastes in self-closing trash containers, in an effort to keep wildlife away from construction areas where they might be harmed (VW-8).

- After completing construction activities within a given phase of the proposed project, disturbed portions of the staging areas used for the project phase would be restored by the construction contractor. One exception to this generalization would be in cases where a particular staging area is also going to be used for a subsequent project phase. In such cases, the shared staging area would not be restored until the final project phase to use the staging area is completed. Another exception would be for staging areas, or portions thereof, that encompass permanent man-made features. Such areas would not be restored (VW-9).

- Restoration of staging areas would first involve restoring pre-construction topography to the degree practicable. Next, a mixture of native grass and forb seeds would be planted throughout disturbed portions of staging areas to establish a permanent vegetative groundcover. The planted areas would be periodically monitored until the average ground cover accounted for by native grasses and forbs reaches approximately 75 percent (VW-9).

- Revegetated areas would be monitored for invasive plant species by USACE staff during the construction contract warranty period of a given project phase. The term invasive plant species refers to those plants listed in the California Invasive Plant Inventory database generated by the California Invasive Plant Council and having an invasive rating of “high” or “moderate”. If it is determined invasive plants are becoming established, such plants would be eradicated by the construction contractor through directed herbicide applications, physical removal, or both. The goal would be to control invasive plant species such that they account for 5 percent or less of the average total plant cover (VW-10).

- Prior to initiating construction of a given project phase, USACE staff would assess drainage depressions, channels, and ditches present at the project site to determine whether any such features provide water to wetlands. USACE staff would also delineate the approximate limits of jurisdictional wetlands located within or immediately adjacent to the project’s limits of construction. The construction contractor would be required to maintain flows in those drainage features that are found to provide water to wetlands (VW-11).

- Once the Park Road detour road segment (an element of the project phase that includes Dikes 1, 2, and 3) is no longer needed for the proposed project, this road segment would be removed. Topography altered by construction of the road would be restored to approximately match pre-construction topography and natural areas disturbed by road construction would be planted with native grasses and forbs (VW-12).

- The contractor would minimize or avoid the effects of nighttime lighting on wildlife species by implementing the following actions: 1) Avoiding construction activities at night, to the maximum extent practicable. 2) Using the minimal amount of lighting necessary to safely and effectively illuminate the work areas. 3) Shielding and focusing lights on work areas and away from the water surface of Folsom Lake and the American River, to the maximum extent practicable. 4) Temporary and permanent lighting will have correlated color temperatures and under 3000K to minimize disturbance to wildlife at night. 5) A qualified biologist will monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented. (VW-13)

- All Mitigation Measures associated with Water Quality and Waters of the United States (WW-1 through WW-17).

- The Air Quality Mitigation Measures AQ-1, AQ-2, and AQ-3.

Project Mitigation Plan

Mitigation of impacts to staging areas would involve the restoration of staging areas to pre-construction topography to the degree practicable, planting a mixture of native grass and forb seeds, and ensuring establishment to approximately 75 percent ground cover (See above VW-9 for details). Although mitigation may be required for air quality and climate change impacts, it's unlikely that mitigation will be required for VELB or wetlands. The most significant impact that requires planning is the expected impacts to oak woodlands at Dikes 1-6 and the oak plantings at MIAD West. Approximately 12.3 acres of oak woodland would be eliminated due to construction and would be compensated for at a mitigation ratio of 1.2:1 as stipulated in Appendix B of the 2017 SEIS/EIR. In other words, for every acre impacted, 1.2 acres would be restored or created. That equates to approximately 14.8 acres of compensatory oak plantings required for mitigation. Additionally, approximately 8.8 acres of oak plantings at MIAD West would be eliminated due to borrow and disposal operations there. Since all of the plantings at MIAD West are less than 1 inch in diameter, the mitigation ratio would be 1:1. The sum total of compensation for the oak woodland habitat eliminated by construction and the oak plantings eliminated at MIAD West would be approximately 23.6 acres. The total acreage for all proposed oak planting sites equates to approximately 24.8 acres and would be planted at a density of approximately 170 trees per acre. The contractor responsibilities would include planting, watering, protecting, monitoring, and maintain areas for up to 5 years with an average density survival goal of at least 25 living native oak trees per acre planted. The additional 1.2 acres beyond the mitigation acreage required accounts for the fact that a road, trails, and a few existing trees and shrubs are found within the proposed planting sites where trees would not be planted.

USACE has coordinated with Reclamation, State Parks, USFWS, DWR, and SAFCA to identify 10 proposed oak planting mitigation sites within the FLSRA (Figures 3-6 for an overview and Figures 3-7 to 3-11 for individual sites). As a general rule, planting areas that overlap with areas that will be disturbed for construction, such as staging areas, would be planted post-construction. Planting areas that will not interfere with construction would be planted as soon as possible.

The oak planting areas include four sites (Areas 1-4) near the northeast end of Dike 1. Areas 1-3 could be planted during construction and Area 4 would be planted post-construction (Figure 3-7

below). Area 5 is northwest of Dike 2 and could be planted during construction (Figure 3-8 below). Areas 6 and 7 are located northwest of Dike 4 (Figure 3-9 below). Area 6 could be planted during construction and Area 7 would be planted post-construction. Area 8 (Figure 3-10 below) is south of Dike 8 and could be planted during construction. Area 9 (Figure 3-10 below) is west of MIAD West and the western half could be planted during construction, but the eastern half would be planted after borrow and disposal operations are complete at MIAD West. Area 10 (Figure 3-11 below) is north of Green Valley Rd. near the intersection of Green Valley Rd. and Access Rd. which leads to the east end of MIAD. Area 10 could be planted during construction provided that planting operations do not interfere with construction access to MIAD.

The total acreage of all 10 proposed oak planting mitigation areas is 24.8 acres. Therefore, the proposed plan is to plant 24.8 acres of native oaks within the FLSRA at the 10 areas mentioned above. The restored areas would be managed and monitored by the USACE (or the USACE contractor) for 5 years, although this period could be reduced to 4 years if success criteria are achieved by that time. Beyond the 4 to 5-year monitoring, it would be the responsibility of State Parks and Reclamation to maintain the oak plantings in perpetuity.

Short-term impacts would be avoided and minimized as much as possible, but the impact would be significant. Overall, the proposed project's long-term impacts to vegetation, wildlife, and wildlife habitats would be less than significant with mitigation.

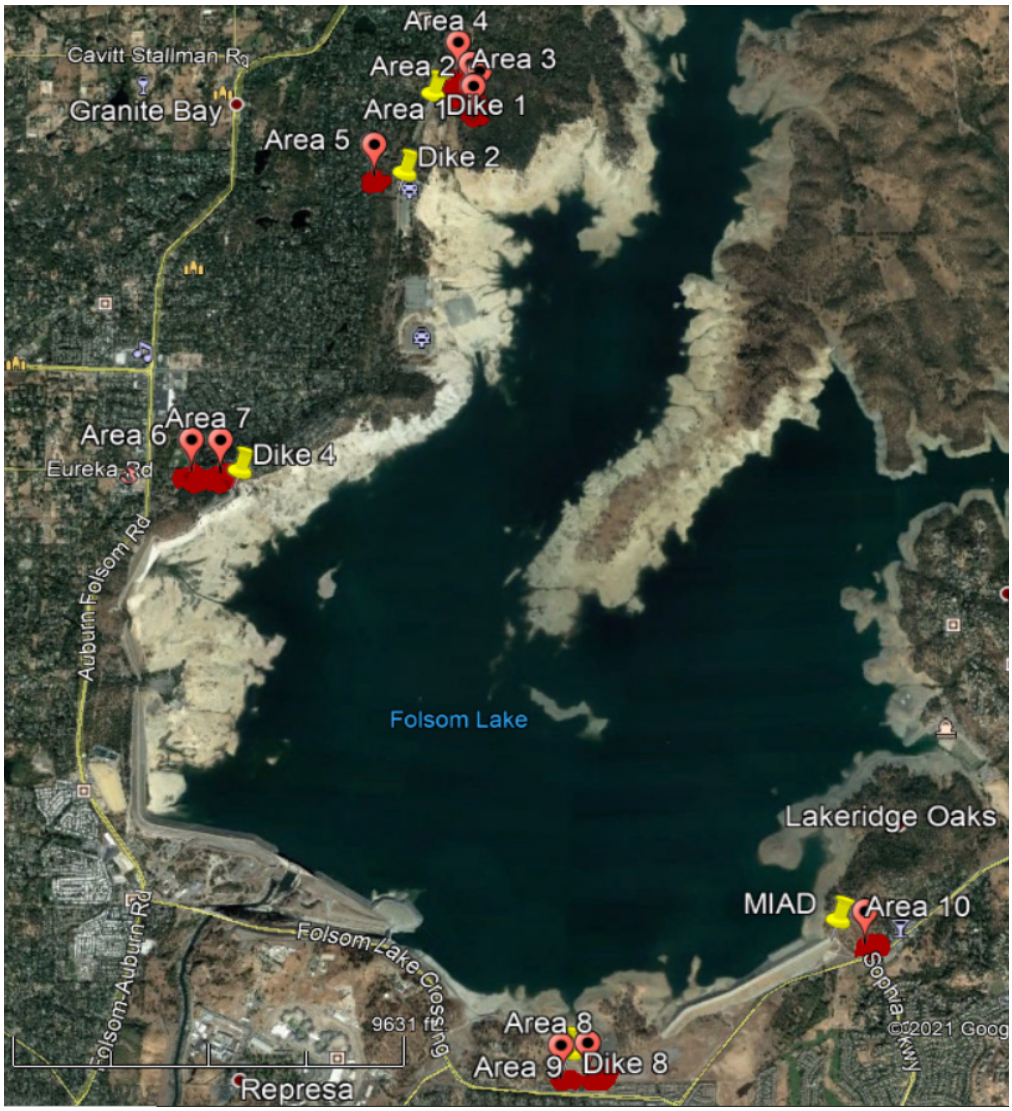

Figure 3-6. Overview of proposed oak tree planting mitigation areas.

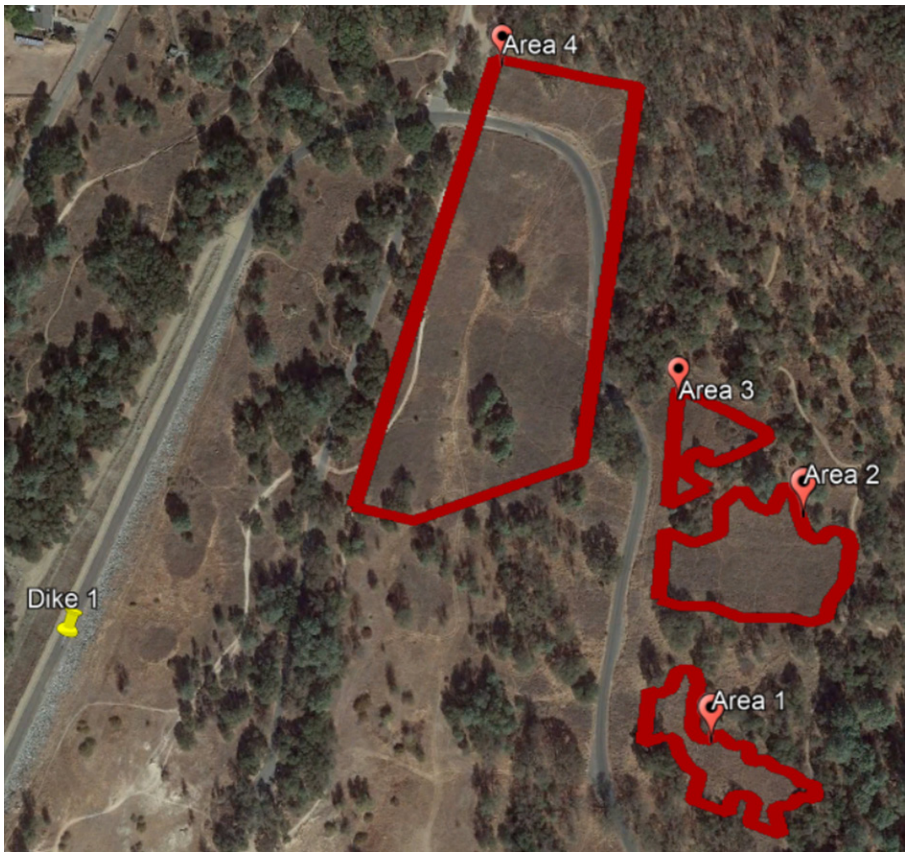

Figure 3-7. Proposed Tree Mitigation Areas 1-4 east of Dike 1.

Figure 3-8. Proposed Tree Mitigation Area 5 west of Dike 2.

Figure 3-9. Proposed Tree Mitigation Area 6 & 7 northwest of Dike 4.

Figure 3-10. Proposed Tree Mitigation Area 8 & 9 near Dike 8.

Figure 3-11. Proposed Tree Mitigation Area 10 east of MIAD and near the intersection of Access Road and Green Valley Rd.

3.3.3 Special Status Species

3.3.3.1 Special Status Species: Environmental Setting

Regulatory Setting

The following Federal, State, and local laws and regulations apply to the resources covered in this section. Descriptions of the laws and regulations can be found in Chapter 5.0.

Federal
Endangered Species Act (16 U.S.C. 1531 et seq.)
Migratory Bird Treaty Act (16 USC §703-712)
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)

State
California Endangered Species Act (Fish and Game Code 2050 et seq.)
California Fish and Game Code (Sections 3511, 4700, 5050, and 5515), Fully Protected Species
California Fish and Game Code (Section 3503), Protection of Bird Nests and Raptors

Existing Conditions

Special-status species are defined as:

- Species that are listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the *Federal Register* for proposed species);
- Species that are candidates for future listing as threatened or endangered under the ESA (72 FR 69034, December 6, 2007);
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5);

- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380);
- Animals that are California species of special concern (CNDDB 2021);
- Animals fully protected in California (CFGC 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

A list of special status species was obtained from the USFWS website, and a search of the CNDDB was conducted. The USFWS and CNDDB lists are included in Appendix D and B, respectively. Excluding listed fish species, a total of 215 special status species are identified as having the potential to occur within the project area. Federally listed fish species that occur in the general region (Central valley steelhead, Central Valley spring run Chinook salmon, and Central Valley winter run Chinook salmon) cannot access potentially suitable habitat in Folsom Lake because passage to such habitat is blocked by Folsom Dam and by Nimbus dam, which is located downstream of Folsom Dam. Because of this, special status fish species are not addressed in this document. Table 3-2 in the 2017 SEIS/EIR lists the special status species and provides their listing status, basic habitat requirements, and potential to occur in the project area.

Special status species that were not identified as occurring or having habitat in the project area are not discussed further in this document. The following federally and state listed species were identified in the 2017 SEIS/EIR and for this DSEIS/EIR as having the potential to occur in the vicinity of the project areas and could be affected by construction activities:

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (Federal Threatened)
- Bald Eagle (*Haliaeetus leucocephalus*) (State Endangered and Fully Protected; Federal Protection under BGEPA)
- Loggerhead Shrike (*Lanitus ludovicianus*) (State Species of Special Concern)
- Swainson's Hawk (*Buteo swainsoni*) (State Threatened)
- White-tailed Kite (*Elanus leucurus*) (State Fully Protected)
- Peregrine Falcon (*Falco peregrinus*) (State Fully Protected)
- Pallid bat (*Antrozous pallidus*) (State Species of Special Concern)
- Western red bat (*Lasiurus blossevillii*) (State Species of Special Concern)

Valley Elderberry Longhorn Beetle

See Section 3.5.1 of the 2017 SEIS/EIR for a detailed discussion of valley elderberry longhorn beetle (VELB).

VELB has the potential to occur within and near the proposed project due to the presence of the VELB's host plant, elderberry. Thus far, a total of 34 existing elderberry shrubs having at least one stem with a diameter of 1 inch or greater, as measured at ground level, have been documented within or near the proposed project. Shrubs with stems that are 1 inch or greater in diameter are considered habitat for VELB (USFWS 2017). Table 3-3 below lists each of these shrubs while their approximate locations are shown in Figure 3-12 and Figure 3-13 below. The biological surveys performed to reach this determination included the following:

- One survey conducted by USACE staff on July 1, 2013 documented shrubs 26 through 29.

- One survey conducted by USACE staff on April 3, 2014 documented shrubs 23, 24, and 25.
- Two surveys were conducted by staff of the USACE, USFWS, DWR, and Reclamation on April 9 and April 19, 2014, during which they documented shrubs 1 through 22.
- Various surveys were performed by biologists from the consulting firm Cardno. Shrubs 30, 31, 32, 33, and 34 were located by Cardno staff and documented in a 2016 report submitted to the USACE (Evans, 2016).
- All potential construction sites identified in this DEIS/EIR were surveyed by USACE staff on May 11, 2020. Shrubs 59, 60, and 61 were discovered during this survey and added to Table 3-3.

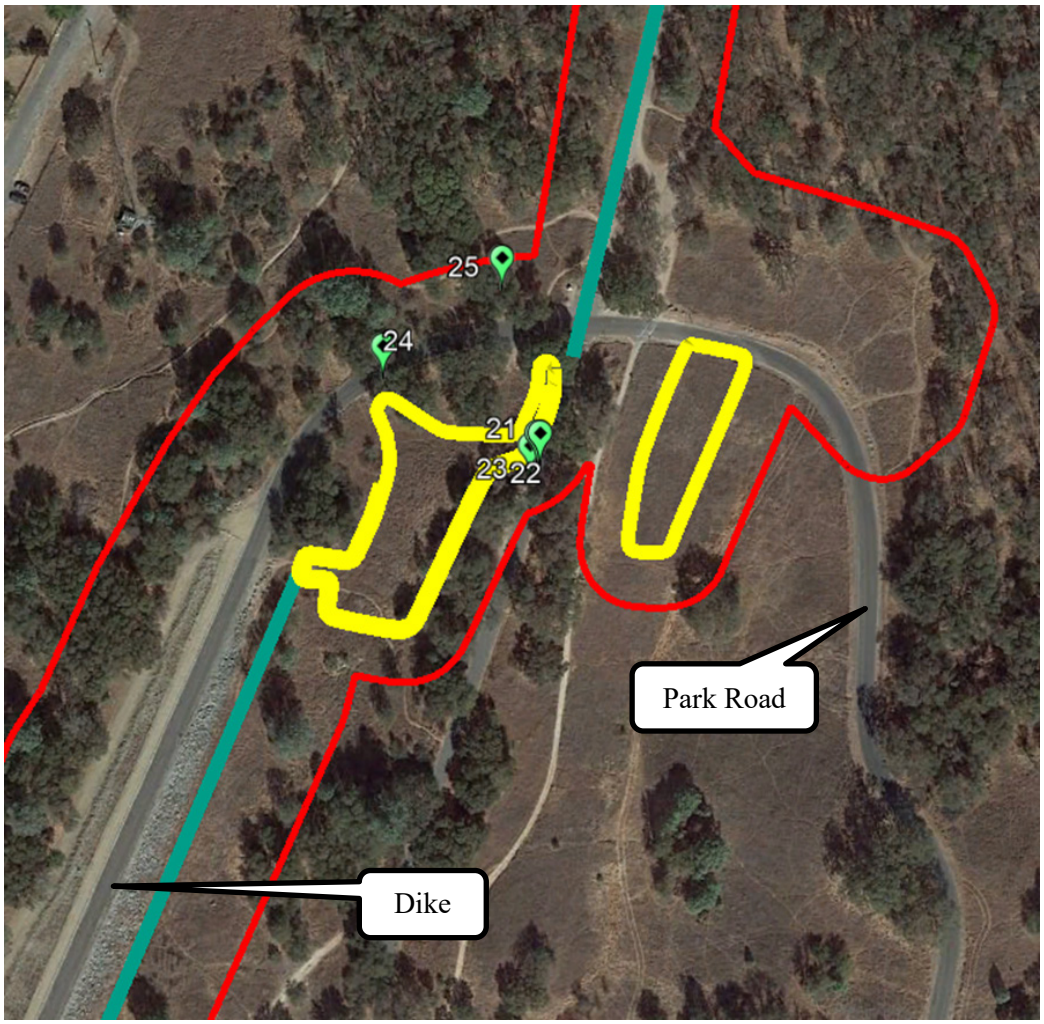

Figure 3-12. Approximate locations of elderberry shrubs (green pins) near Dike 1. Includes limits of construction (red), staging areas (yellow), and haul routes (green). Northern portion of the project.

Figure 3-13. Approximate locations of elderberry shrubs (green pins). Includes limits of construction (red). Southern portion of project.

Table 3-3. Data for existing elderberry shrubs within or near the limits of the proposed project.

Shrub ID	General Location	Latitude	Longitude	Project Impact Anticipated	Work Within 20 ft or 100 ft	USFWS Consultation Complete
1	Beals Point	38.719209	-121.174707	Indirect	20 ft	Yes
2	Beals Point	38.716153	-121.173462	Indirect	20 ft	Yes
3	Beals Point	38.715998	-121.172167	Indirect	20 ft	Yes
4	Dike 7	38.695054	-121.142840	Indirect	20 ft	Yes
5	RWD	38.719531	-121.171076	Indirect	100 ft	In progress
6	RWD	38.719576	-121.171075	Indirect	100 ft	In progress

Shrub ID	General Location	Latitude	Longitude	Project Impact Anticipated	Work Within 20 ft or 100 ft	USFWS Consultation Complete
7	RWD	38.719298	-121.171151	Indirect	100 ft	In progress
8	RWD	38.715361	-121.171251	Indirect	100 ft	In progress
9	RWD	38.711281	-121.171367	Indirect	100 ft	In progress
10	RWD	38.711213	-121.171000	Indirect	100 ft	In progress
11	RWD	38.711464	-121.170960	Indirect	100 ft	In progress
12	RWD	38.709229	-121.165151	Indirect	100 ft	In progress
13	RWD	38.709331	-121.165344	Indirect	100 ft	In progress
14	RWD	38.709331	-121.165344	Indirect	100 ft	In progress
15	RWD	38.720226	-121.170023	Indirect	100 ft	In progress
16	RWD	38.720181	-121.169990	Indirect	100 ft	In progress
17	Dike 6	38.721244	-121.171136	Indirect	100 ft	In progress
18	Dike 6	38.721198	-121.171102	Indirect	100 ft	In progress
19	Between Dikes 5 & 6	38.725228	-121.171828	Indirect	20 ft	In progress
20	Between Dikes 5 & 6	38.725228	-121.171828	Indirect	20 ft	In progress
21	Dike 1	38.764933	-121.144608	Indirect	20 ft	In progress
22	Dike 1	38.764933	-121.144620	Indirect	20 ft	In progress
23	Dike 1	38.764898	-121.144644	Indirect	20 ft	In progress
24	Dike 1	38.765177	-121.145189	Indirect	20 ft	In progress
25	Dike 1	38.765431	-121.144757	Indirect	100 ft	In progress
26	Right Bank of American River	38.705471	-121.160004	None	>100 ft	N/A
27	Right Bank of American River	38.705378	-121.162076	None	>100 ft	N/A
28	Right Bank of American River	38.705480	-121.159980	None	>100 ft	N/A
29	Right Bank of American River	38.705224	-121.163736	None	>100 ft	N/A
30	Right Bank of American River	38.705444	-121.159993	None	>100 ft	N/A
31	Right Bank of American River	38.705210	-121.163437	None	>100 ft	N/A
32	Right Bank of American River	38.705093	-121.161186	None	>100 ft	N/A

Shrub ID	General Location	Latitude	Longitude	Project Impact Anticipated	Work Within 20 ft or 100 ft	USFWS Consultation Complete
33	Dike 7	38.696770	-121.139116	Indirect	100 ft	In progress
34	Dike 6	38.721540	-121.170496	Indirect	20 ft	In progress
35	Main Dam	38.705439	-121.15678	None	>100 ft	N/A
36	Auxiliary Spillway	38.703404	-121.157446	None	>100 ft	N/A
37	Auxiliary Spillway	38.703815	-121.157275	None	>100 ft	N/A
38	Main Dam	38.706013	-121.156643	None	>100 ft	N/A
39	Beals Point	38.720993	-121.169918	Indirect	20 ft	In progress
40	Beals Point	38.702815	-121.109269	Indirect	20 ft	In progress
41	MIAD	38.696900	-121.119646	Indirect	>100 ft	N/A
42	MIAD	38.696612	-121.120781	Indirect	100 ft	In progress
43	Dike 4	38.735410	-121.166046	Indirect	100 ft	In progress
44	Beals Point	38.720562	-121.174224	Indirect	100 ft	In progress
45	Beals Point	38.720819	-121.172216	None	100 ft	In progress
46	Beals Point	38.720828	-121.172205	None	100 ft	In progress
47	Beals Point	38.720827	-121.172170	None	100 ft	In progress
48	Beals Point	38.720827	-121.172147	None	100 ft	In progress
49	Beals Point	38.720836	-121.172170	None	100 ft	In progress
50	Beals Point	38.720845	-121.172135	None	100 ft	In progress
51	Beals Point	38.720872	-121.172134	None	100 ft	In progress
52	RWD	38.720218	-121.170081	Indirect	100 ft	In progress
53	RWD	38.720399	-121.170111	Indirect	100 ft	In progress
54	RWD	38.709208	-121.168408	Indirect	100 ft	In progress
55	RWD	38.708973	-121.168719	Indirect	100 ft	In progress
56	RWD	38.709035	-121.168741	Indirect	100 ft	In progress
57	Beals Point	38.720001	-121.174976	Indirect	100 ft	In progress
58	Dike 1	38.762221	-121.143068	Indirect	100 ft	In progress
59	RWD	38.718307	-121.171199	Indirect	100 ft	In progress
60	Dike 6	38.721726	-121.171426	Indirect	100 ft	In progress
61	RWD	38.717492	-121.171150	Indirect	100 ft	In progress

Notes:

1) The "Project Impact Anticipated" column lists three types of potential impacts. "Direct" impacts indicate the elderberry shrub may need to be removed from the project site. "Indirect" impacts indicate the elderberry shrub may be preserved at its current location, but the shrub (including any VELB present) could potentially be affected by things like dust and vibration generated during project construction activities. Impacts shown as "None" indicate that it is currently known that the shrub can be preserved at its existing location and that a buffer zone extending at least 100 feet beyond the drip line of the shrub can be provided during project construction work. It is emphasized that the anticipated impacts listed as "Direct" and "Indirect" are preliminary. The assessment of potential impacts to elderberry shrubs coded as having a project impact of "Direct" or "Indirect" will be refined as project construction plans are more fully developed. These are the maximum anticipated impacts for the current design.
2) The "Work Within 20 ft or 100 ft" column indicates the proximity of an elderberry shrub to haul routes, staging areas, or other construction areas where equipment must pass within the 100 ft buffer from the dripline of the elderberry shrub. "100 ft" indicates that work would occur outside of the 20 ft buffer but within the 100 ft buffer.

"20 ft" indicates that work would occur within 20 ft buffer, but the elderberry would be protected in place. "N/A" indicates that the shrub is more than 100 ft from any construction actives.

3) Consultation with USFWS for work near elderberry shrubs 1 through 4 is complete. All other shrubs either do not require USFWS consultation or consultation is in progress.

Bald Eagles, Loggerhead Shrikes, Swainson's Hawks, and White-tailed Kites

See Section 3.5.1 of the 2017 SEIS/EIR for a detailed discussion of bald eagles, loggerhead shrikes, Swainson's hawks, and white-tailed kites.

3.3.3.2 Special Status Species: Environmental Consequences

Methodology

Based on the USFWS list for the quadrangles within the study area (Clarksville, Folsom, and Rocklin), a review of CNDDB occurrences within a 10-mile radius of the study area, and biologist's observations during reconnaissance-level surveys, five special-status wildlife species (discussed above) were identified as having potential to occur within the study area and surrounding region. For CEQA purposes, this analysis also considers potential impacts on special-status bats.

Basis of Significance

For this analysis, based on professional practice and NEPA and CEQA Guidelines for special status species, a direct or indirect effect, was considered significant if it met one or more of the following significance criteria:

- substantial adverse effect, either directly or indirectly, on species growth, survival, or reproductive success through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or the USFWS;

- Interfere substantially with the movement of any species listed or proposed for listing as threatened or endangered under Federal or State ESA, or with established corridors, or impede the use of nursery sites;

- Contribute to a substantial reduction or elimination of species listed or proposed for listing as threatened or endangered under Federal or State ESA diversity or abundance; or

- Have an adverse effect on a species' designated critical habitat, if applicable.

3.3.3.3 Special Status Species: Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR. The construction-related effects to all existing special status species or their critical habitat would be less than significant with mitigation.

3.3.3.4 Special Status Species: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete

Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

Effects to Valley Elderberry Longhorn Beetle (VELB)

The proposed project would include situations where elderberry shrubs would be preserved at their existing locations and a protective buffer that extends at least 100 feet beyond the shrubs would be provided and maintained during project construction. In such cases, the USACE has determined there would be no effects to the VELB. This conclusion is in keeping with the *Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle within the Jurisdiction of the Sacramento Field Office, California* (Service File 1-1-96-F-66), as first appended to add the Folsom Dam Safety/Flood Damage Reduction Project on November 1, 2012 (Service File 08ESMF00-2013-F-0044).

The proposed project would also include instances where elderberry shrubs would be preserved at their existing locations and a protective buffer would be provided and maintained during project construction, but the buffer would extend less than 100 feet beyond the shrubs. In such cases, there could be indirect or direct impacts to the VELB such as:

- Short-term adverse effects such as vibration and dust generated by nearby construction equipment, which could disturb the VELB.

- Potential adverse effects if construction contractors inadvertently damage a particular elderberry shrub during project construction, despite the presence of the protective buffers/barriers.

- Potential reduction in the long-term viability of elderberry shrubs due to the placement of materials during project construction.

Such effects are considered less than significant with the implementation of the avoidance and minimization measures discussed in Section 3.3.3.5. Given these considerations, USACE has determined that in the scenario described (e.g. elderberry shrubs preserved with protective buffers less than 100 feet) the proposed project may affect but is not likely to adversely affect the VELB.

Finally, the proposed project could include cases where direct impacts to one or more elderberry shrubs cannot be avoided. In such cases, the USACE would purchase credits from a USFWS-authorized conservation bank whose service area encompasses the project site and the affected shrubs would be transplanted to the conservation bank (refer to Section 3.3.3.5). Potential adverse impacts to the VELB under this scenario include:

- Any beetle larvae occupying the elderberry shrubs being transplanted could be killed during the transplantation process or the larvae's life cycle could be interrupted.
- Any adult beetles occupying the elderberry shrubs being transplanted could be killed during the transplantation process, especially during the flight season of the VELB

- The transplanted shrubs could die as a result of transplantation, or these shrubs could experience stress due to changes in hydrology, soil, micro climate, or associated vegetation.

- Shrub branches containing larvae might be cut, broken, or crushed during the transplantation process.

- The removal of shrubs may further fragment remaining habitats, thereby making VELB dispersal more difficult.

Given the above, USACE has determined that in cases where elderberry shrubs must be transplanted from the project site, the project may affect, and is likely to adversely affect and significantly impact, the VELB or its habitat even though compensatory mitigation would be provided. Despite the potential adverse effects to VELB, the transplanting of elderberry shrubs is a less than significant impact to this species owing to the limited number of shrubs that would likely be involved and the fact that compensatory mitigation would be provided.

There is no critical habitat designation under Section 4(b)(2) of the ESA for the VELB within the Folsom Dam Raise Project area, although such critical habitat occurs elsewhere. Therefore, critical habitat for the VELB would not be affected by the proposed project.

USACE is currently in the process of submitting a request for reinitiation of Section 7 consultation to USFWS that contains appropriate information and seeks concurrence with the USACE effects determination and the USACE proposed avoidance, minimization, and compensatory mitigation measures. USACE will only proceed with construction of a given portion of the project following receipt of the USFWS's Biological Opinion (e.g. amendment to Service File 08ESMF00-2017-F-0043).

USACE has determined that the level of anticipated take resulting from the overall Folsom Dam Raise Modifications project is not likely to result in jeopardy to the VELB or destruction or adverse modification of critical habitat. The USACE further maintains that addition of the overall Folsom Dam Raise Modifications project to the original USFWS programmatic consultation (Medlin, 1996; Service File 1-1-06-F-66) would not result in unacceptable effects on the VELB or its ecosystem.

On October 13, 2016, the USFWS issued a Biological Opinion that addressed the proposed project's potential impacts to the VELB (see Appendix D of the 2017 SEIS/EIR). This agency concluded that the overall project would not likely jeopardize the continued existence of the VELB. USACE is in the process of reinitiating consultation with USFWS based on the changes to VELB impacts described in this DSEIS/EIR. Currently, no purchase of conservation credits for VELB impacts is anticipated. Adverse short-term impacts would be expected; however, the long-term impacts would be less than significant with mitigation, similar to the impacts described in the 2017 SEIS/EIR except the currently Proposed Project would not need to transplant shrubs and therefore mitigate for impacts to VELB.

Effects to Bald Eagle

Bald eagles have been observed flying and foraging in the general vicinity of the proposed project, primarily in Folsom Lake. Bald eagle nests have not been documented within 660 feet to any areas that would be disturbed by project construction activities. Therefore, there would be no impact to Bald Eagle nests. Limited, adverse, short-term impacts are expected on foraging adults due to construction disturbance. Long-term impacts would be less than significant with mitigation. Impacts as a result of the Proposed Project are similar to those that were reported for the Proposed Action of the 2017 SEIS/EIR. Associated avoidance, minimization, and mitigation measures are found in Section 3.3.3.5 below.

Effects to Swainson's Hawk, Loggerhead Shrike, White-tailed Kite, and Peregrine Falcon

A Peregrine Falcon nest has been observed on the right side of the Main Dam. Project construction activities could potentially result in direct and indirect effects to Swainson's Hawk, Loggerhead Shrike, White-tailed Kite, and Peregrine Falcon if they begin nesting adjacent to construction areas. Construction activities in the vicinity of a nest could result in potentially significant impact through forced fledging or nest abandonment by adult birds. Disturbance that could adversely impact these species include habitat loss and construction noise disturbance. The proposed project may result in short-term adverse impacts to nesting Swainson's Hawk, Loggerhead Shrike, White-tailed Kite, Peregrine Falcon, and other migratory birds. Long term impacts would be less than significant with mitigation. Impacts as a result of the Proposed Project are similar to those that were reported for the Proposed Action of the 2017 SEIS/EIR. Associated avoidance, minimization, and mitigation measures are found in Section 3.3.3.5 below.

Effects to Special-Status Bats

Several species of bat are identified by CDFW as species of special concern; therefore, impacts on these species are analyzed under CEQA only. Mature trees that may provide suitable roost cavities for pallid bat (*Antrozous pallidus*) and other trees with suitable foliage for roosting by western red bat (*Lasiurus blossevillii*) occur in woodland areas on the project site. Most of the trees that would be removed are likely to provide few, if any, cavities for roosting pallid bats. However, mature valley oak trees that may provide high-quality pallid bat roosting habitat and some tree species that are typically favored by roosting red bats would be removed. Although the likelihood is relatively low, it is possible this habitat would support a maternity colony; removal of a maternity colony could result in loss of a large number of individuals of special-status bats, potentially having a significant adverse impact on the local population under CEQA. Adverse short-term impacts are anticipated while long term impacts would be less than significant with mitigation. Analysis of impacts to bats were not included in the 2017 SEIS/EIR therefore there is no comparison to the previously reported impacts to bats. Associated avoidance, minimization, and mitigation measures are found in Section 3.3.3.5 below.

3.3.3.5 Special Status Species: Avoidance, Minimization, and Mitigation Measures

The following measures are proposed by the USACE to avoid, minimize, or mitigate significant effects to special status species that are associated with the Folsom Dam Raise Modification Project to less than significant. The mitigation measures from the 2017 SEIS/EIR (USACE, 2017) will continue to be implemented.

Valley Elderberry Longhorn Beetle

The designs in the Folsom Dam Raise Modifications Project would avoid direct impacts to elderberry shrubs (e.g., shrub removal) to the degree practicable. To minimize the potential take of the VELB, the following measures would be incorporated into the project:

- As project design plans are developed and refined, USACE, to the degree practicable, would adjust the limits of construction to avoid removal of existing native trees and large shrubs (with a DBH of 1 inches or greater) and elderberry shrubs (having one or more stems measuring 1 inch or greater in diameter at ground level) (LS-1).

- Prior to construction of a particular project phase, USACE environmental staff would perform field surveys to locate elderberry shrubs having one or more stems measuring 1.0 inch or greater in diameter at ground level that are within or in close proximity to the project phase's limits of construction. (LS-6)

- Construction personnel would receive USFWS-approved worker environmental awareness training to ensure that workers recognize elderberry shrubs and the VELB. The training would include: the protected status of VELBs and their host plants, elderberry shrubs; the need to avoid adversely affecting elderberry shrubs; elderberry shrub avoidance areas (protective buffers/exclusion zones); measures to be taken by workers during construction to protect elderberry shrubs; possible penalties that could be imposed for not complying with requirements established for the protection of elderberry shrubs and the VELB; and key USACE contacts and key contacts with the construction contractor pertaining to environmental issues. (LS-7)

- Where practicable, a minimum setback (buffer) of 100 feet from the dripline of all elderberry shrubs containing stems measuring 1.0 inch or greater in diameter at ground level would be established. There may be instances where a 100-foot buffer is not practicable due to various constraints. In such cases, a buffer of at least 20 feet from the dripline of such elderberry shrubs would be established if feasible. The USACE would consult with USFWS prior to establishing any elderberry shrub buffer zones (setbacks) that extend less than 100 feet from the dripline of a particular shrub. Such buffer zones would not be established without first obtaining approval from USFWS. As much as feasible, all activities that could occur within 50 meters (165 feet) of an elderberry shrub would be conducted outside of the flight season of the VELB (March–July). (LS-8)

- Prior to project construction activities near elderberry shrubs to be preserved as part of the project, protective barriers would be installed along the limits (boundaries) of approved elderberry shrub buffer zones (exclusion areas). These barriers would typically be orange-mesh fencing but could also include other barriers such as wooden fencing, staked ropes with flagging, or K-rails (Jersey barriers). The protective barriers would be maintained throughout the duration of project construction and/or restoration activities. No construction activities or similar disturbances would be allowed within the elderberry shrub buffer zones unless authorized in advance by the USACE and USFWS.

Regardless of the preceding, there could be situations where elderberry shrubs to be preserved are located in areas near a proposed project phase where no construction work would occur within 100 feet of the shrubs and existing landscape conditions (ex. steep terrain, intervening roadways, etc.) are such that it would be highly improbable that construction work could inadvertently damage such shrubs. In such cases, protective barriers would not be installed if approved in advance by USFWS. (LS-8)

- Signs would be placed approximately every 50 feet along the edge of the elderberry shrub buffer zones (i.e., along the protective barriers discussed above). The signs would include the text: "This area is the habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs would be readable from 20 feet and would be maintained during project construction. If protective barriers are not required to be installed along limits of elderberry shrub buffer zones, no signs would be provided along these buffer zones. (LS-8)

- Any damage done within elderberry shrub buffer zones during project construction would be remediated shortly following the discovery of such damage. Remediation work may include installing erosion control measures, seeding disturbed areas with appropriate native plant seeds, etc. (LS-9)

- No insecticides, herbicides, fertilizers, or other chemicals that might harm the VELB or its host plant would be used in elderberry shrub buffer zones, or within 100 feet of any elderberry shrub with one or more stems measuring 1.0 inch or greater in diameter at ground level. (LS-10)

- If mowing of vegetation is deemed necessary to reduce fire hazard, such mowing may be performed within elderberry shrub buffer zones but only during the period from August through February when adults are not active. No mowing would be allowed within 5 feet of elderberry shrub stems, and all mowing would be done in a manner that avoids damaging elderberry plants. (LS-11)

- During project construction and/or restoration activities that involve earthwork, measures would be employed to suppress generation of dust. Such measures would include frequent watering of project haul roads, earthen stockpile areas, and similar exposed soil surfaces. (LS-14)

There may be cases where it is not practicable to avoid direct construction impacts to elderberry shrubs meeting the stem diameter requirements stated above. In such cases, USACE would purchase an appropriate number of credits from a USFWS-approved conservation bank within the service area. The determination of the number of conservation credits required would be based on methodologies prescribed in the USFWS conservation guidelines for VELB (USFWS, 1999) and direct coordination with USFWS staff. USACE would also contract with the same conservation bank from which the conservation credits are purchased to transplant the affected elderberry shrub(s) from the project site to the conservation bank. The affected shrubs would be transplanted when the plants are dormant (roughly November through the first 2 weeks in February) if feasible. The contractor (the

conservation bank) would be required to follow the transplanting procedure set forth in the VELB Guidelines and USACE staff would monitor the removal of the shrubs from the project site (LS-12). For the current design, no elderberry transplantations are anticipated.

The process for evaluating the potential impacts to VELB in a given project phase would be as follows: (1) Designate elderberry shrubs that would be preserved and the protective buffers associated with each of those shrubs; (2) Designate shrubs that would have to be removed/transplanted, and determine the number of conservation credits that would have to be purchased to compensate for those shrubs that must be transplanted; (3) Submit a request for reinitation of Endangered Species Act Section 7 consultation to USFWS that contains seeks concurrence with the USACE effects determination and the USACE proposed avoidance, minimization, and compensatory mitigation measures, (4) Proceed with construction of a given phase following receipt of the USFWS's Biological Opinion (e.g. amendment to Service File 08ESMF00-2017-F-0043) (LS-13).

Through employing the avoidance and minimization measures and implementing Mitigation Measures LS-6, LS-7, LS-8, LS-9, LS-10, LS-11, LS-12, LS-13, and LS-14 (Table 2-4 in Appendix A) would reduce significant effects on VELB to a less-than-significant level.

Bald Eagle

Prior to starting construction activities for the Proposed Project, a qualified biologist would survey areas within approximately 1,000 feet of the areas slated for construction in the given phase to determine whether any bald eagle nests are present. The typical maximum buffer distance between a bald eagle nest and construction activities is 660 feet (USFWS, 2007). If any bald eagle nests are discovered during the field surveys, regardless of whether a nest is classified as active, inactive/alternate, or abandoned, the USACE would coordinate with USFWS staff and CDFW staff to determine measures necessary to avoid, minimize, or mitigate potential adverse construction impacts to bald eagles. Any such measures necessary would be implemented. Such measures could include not conducting project construction work within 660 feet of an active bald eagle nest or monitoring behavior of eagles tending an active or alternate nest for signs of stress and potential nest abandonment during the nesting season (LS-2). By following guidance provided by USFWS and CDFW, the project would not agitate any bald eagles to a degree that causes, or is likely to cause, injury to an eagle or a decrease in eagle productivity or nest abandonment by interfering with normal breeding, feeding, or sheltering behavior. Therefore, there would be no impact to Bald Eagle nests. Temporary short-term impacts are expected on foraging adults during construction. Long-term impacts would be less than significant with mitigation, by implementing the above and measures to protect trees and water quality (found in Table 2-4 in Appendix A).

Loggerhead Shrike, White-Tailed Kite, and Peregrine Falcon

Prior to beginning construction for the Proposed Project, USACE biologists would survey within 1,000 feet of the areas slated for construction in the given phase for loggerhead shrikes, white-tailed kites, and Peregrine Falcon to determine if the species is present. If any active nests are discovered during the field surveys the USACE would coordinate with CDFW staff to determine measures necessary to avoid, minimize, or mitigate potential adverse construction impacts (LS-3). Through coordination with CDFW and implementing recommended avoidance, minimization, and Mitigation Measures LS-3, LS-4, and LS-5 (Table 2-4 in Appendix A), it is anticipated that project

construction effects to loggerhead shrike would be less than significant.

Swainson's Hawk

Prior to beginning construction of the Proposed Project, USACE biologists would survey areas within approximately a 0.5-mile radius (2,640-foot radius) of construction areas to determine if Swainson's hawk nests or white-tailed kite nests are present. Swainson's hawk surveys would be completed in compliance with the CDFW survey guidance (Swainson's hawk Technical Advisory Committee, 2000). Other migratory bird nest surveys can be conducted concurrent with the Swainson's hawk surveys, with at least one survey conducted no more than 48 hours from the initiation of project construction activities to confirm the absence of nesting. If the area surveyed does not contain any active nests, construction activities would commence without any further mitigation. If these surveys find there are active nests present within the defined areas, CDFW would be contacted to determine the proper course of action. If necessary, buffers would be established around active nests with no construction allowed within the buffer zones until fledglings have left the nests. An alternative approach might involve monitoring active nests near project construction areas for signs of stress exhibited by the adult birds, which could lead to nest abandonment (LS-3). Through coordination with CDFW and implementing recommended avoidance, minimization, and Mitigation Measures LS-3, LS-4, and LS-5 (Table 2-4 in Appendix A), it is anticipated that project construction effects to Swainson's hawk would be less than significant.

Other Migratory Birds

Various migratory bird species, besides Swainson's hawk, loggerhead shrike, and white-tailed kite discussed above, may nest in trees and shrubs that are situated within areas that will be directly disturbed by project construction activities or are in close proximity to such areas. The following measures would be taken to help avoid, minimize, and mitigate for potential adverse impacts to active migratory bird nests.

- As project design plans are refined, the USACE would adjust the limits of construction to avoid removal of existing native trees and large shrubs to the degree practicable. (VW-4)

- Prior to initiating construction activities for the proposed project, USACE biologists would conduct surveys for migratory bird nests situated within the limits of construction as well as such nests located within approximately 250 feet of these limits. If inactive nests are found (e.g., nests that do not contain eggs or chicks), these would be removed to help prevent birds from re-using the nests. If active nests are found, the protocol described below would be followed. (LS-4)

- If the surveys performed above do not take place during the migratory bird nesting season (typically March 1 through August 31), then USACE biologists would again conduct surveys for migratory bird nests at the beginning of the nesting season in a manner similar to that discussed above.

- If active migratory bird nests are discovered within the project limits of constructions, buffer areas would typically be established by the construction contractor around each nest and

construction activities within the buffer(s) would be prohibited until the young occupying the nests have fledged. The USACE would coordinate with USFWS staff and CDFW staff to determine the appropriate size of such nest buffer zones. Similarly, if active migratory bird nests are documented within approximately 250 feet of the project's limits of construction, buffer areas would also be established around these nests as well. It is emphasized that there may be exceptions to this procedure, as described below. (LS-4)

- There may be instances where it is not practicable for project construction activities to avoid direct impacts to active migratory bird nests. The USACE would obtain a Special Purpose Permit (Migratory Bird Permit) from USFWS in such cases prior to impacting the active nests. This permit would authorize live-trapping and relocation of the affected active nests and the eggs or chicks occupying the nests. Chicks and/or viable eggs collected by qualified USACE staff pursuant to the permit would typically be taken to the Wildlife Care Association located in McClellan, California; however, the chicks and/or eggs might be taken to a different care facility if warranted. (LS-4)

- The construction contractor would be required to report any active or inactive migratory bird nests to the USACE within 24 hours of discovery of such nests. (LS-5)

The project's temporary impacts to migratory bird species would be less than significant by following the avoidance, minimization, and Mitigation Measures LS-4 and LS-5 (Table 2-4 in Appendix A).

Bats

Various bat species may roost in trees that are situated within areas that will be directly disturbed by project construction activities or are in close proximity to such areas. The following measures would be taken to help avoid, minimize, and mitigate for potential adverse impacts to active bat roosts. (LS-15)

- Wherever feasible, construction activities would be conducted outside of the pupping season for bats (generally April 1 to August 31).

- If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biologist for the presence of features that may function as special status bat maternity roosting habitat. Trees that do not contain potential special status maternity roosting habitat may be removed. For trees that contain suitable special status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by a qualified biologist in trees designated for removal. The surveys shall be conducted from dusk until dark.

- If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from tree removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be performed in the vicinity. No project activity shall commence within the buffer areas until the end of the

pupping season (September 1) or until a qualified biologist confirms the maternity roost is no longer active. If construction activities must occur within the buffer, a qualified biologist would monitor activities either continuously or periodically during the work, as determined by the qualified biologist. The qualified biologist would be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated adverse effects on specials status bats. If construction activities are stopped, CDFW would be consulted to determine appropriate measures to implement to avoid adverse effects.

- For trees containing cavities, cracks, crevices, or deep bark fissures that are planned for removal or trimming (irrespective of time of year), such trees must be trimmed and/or removed in a two-phase removal system conducted over two consecutive days. The first day (in the afternoon), limbs and branches would be removed, using chainsaws only. Removal activities must avoid limbs with cavities, cracks, crevices, or deep bark fissures, and remove only branches and limbs without those features. On the second day, the entire tree would be removed. A qualified biologist would monitor removal of these trees.

Implementing Mitigation Measure LS-15 (Table 2-4 in Appendix A) would reduce significant effects on roosting special-status bats under CEQA to a less-than-significant level by implementing appropriate buffers around active roosts that could be affected by project activities.

In the unlikely event that 24-hour work is required, the contractor would minimize or avoid the effects of nighttime lighting on wildlife species by implementing the following actions (VW-13):

- Avoiding construction activities at night, to the maximum extent practicable.
- Using the minimal amount of lighting necessary to safely and effectively illuminate the work areas.
- Shielding and focusing lights on work areas and away from the water surface of Folsom Lake and the American River, to the maximum extent practicable.
- Temporary and permanent lighting will have correlated color temperatures and under 3000K to minimize disturbance to wildlife at night.
- A qualified biologist will monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented.

3.3.4 Air Quality

3.3.4.1 Air Quality: Environmental Setting

Regulatory Setting

This section provides regulatory background and the current environmental setting for air pollutants. Air quality pollutants that are assessed include criteria pollutants, which are pollutants with established national standards, and toxic air contaminants (TACs) which often lack established

standards. Federal and local regulatory agencies have different threshold criteria for each area of analysis.

Air quality management and protection are regulated by federal, state, and local levels of government. The primary statutes that establish ambient air quality standards and establish regulatory authorities to enforce regulatory attainment are the Federal Clean Air Act (CAA) and California Clean Air Act (CCAA). Applicable air quality regulations and responsible agencies are described below.

Federal

The CAA sets emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emissions standards for hazardous air pollutants. The USEPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, which are known to be harmful to human health and the environment under the provisions of the CAA. These pollutants are: 1) carbon monoxide (CO), 2) lead (Pb), 3) nitrogen dioxide (NO_2), 4) ozone (O_3), 5) particulate matter (this is broken down into particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)) and 6) sulfur dioxide (SO_2). For each of these six criteria pollutants there are Federal and State Standards. For several of these pollutants, California has set standards which are more protective.

Air quality within a control region is classified by the USEPA according to whether the region meets or exceeds Federal primary and secondary NAAQS established by the CAA. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare (i.e., soils, vegetation, and wildlife) from any known or anticipated adverse effects of a pollutant.

Under the CAA, state and local agencies in areas that exceed the NAAQS are required to develop state implementation plans (SIP) to show how they will achieve the NAAQS for criteria pollutants that do not meet standards, and as a result are in nonattainment status.

USEPA promulgated the General Conformity Rule, which applies to most federal actions, including the Folsom Dam Raise project. The General Conformity Rule is used to determine if federal actions meet the requirements of the CAA and the applicable State Implementation Plan by ensuring that pollutant emission related to the action do not:

- Cause or contribute to new violations of a NAAQS
- Increase the frequency or severity of any existing violation of a NAAQS
- Delay timely attainment of a NAAQS or interim emission reduction.

A conformity determination is required if the federal agency determines that the action is to occur in a nonattainment area or maintenance area; the action is not included in the federal agency's "presumed to conform list"; the emission from the proposed action are not within the approved

emissions budget; and the total direct and indirect emissions of a pollutant area are at or above the annual *de minimus* thresholds established in the General Conformity regulations.

State

Responsibility for attaining and maintaining air quality in California is divided between the California Air Resources Board (CARB) and Regional Air Quality Districts. Areas of control for the regional districts are set by CARB, which divides the State into air basins. These air basins are defined by topography that limits air flow access, or by county boundaries. Air quality attainment plans requirements are established by the California Clean Air Act (CCAA) based on the severity of air pollution problems cause by locally generated emissions. CARB and the local air districts have also been delegated authority by the USEPA to enforce the Federal National Emission Standards for Hazardous Air Pollutants. TACs are defined by California law as an air pollutant that "may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health". Controlling toxic air emissions became a National priority with the passage of the Clean Air Act Amendments, whereby Congress mandated that USEPA regulate 188 air toxicants. TACs can be emitted from stationary and mobile sources. TACs do not have ambient air quality standards because often safe levels of TACs have not been determined and instead are evaluated by calculating health risks associated with exposure.

Local

The local air quality management districts (AQMD), also called air pollution control districts (APCD), implement federal and state regulations at the local level, permit stationary sources of emission and develop the local elements of the SIP. Air quality management at the local level is also accomplished by requested incorporation of mitigation measures on project environmental impact assessment under CEQA and mitigated negative declarations developed by project proponents under CEQA. CEQA requires mitigation of air quality impacts that exceed certain significance thresholds established by the local air quality management district.

The following Federal, State, and local laws, regulations, and policies apply to the resources covered in this Section. Descriptions of the laws and regulations can be found in Section 5.0, Compliance with Environmental Laws and Regulations.

- Federal:
    - Clean Air Act, 42 U.S.C §7401, *et seq.*
    - Federal Tailpipe Emission Standards, 40 CFR Part 88
    - General Conformity Regulation, 40 CFR Parts 5, 51 and 93
    - National Ambient Air Quality Standards, 40 CFR Part 50

- State:
    - Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations
    - California Ambient Air Quality Standards
    - California Clean Air Act, Health and Safety Code, Division 26

  - Idling Limit Regulation, Title 13, California Code of Regulations
  - Fugitive Dust Rule 403

- Local:
  - El Dorado County Air Quality Management District (EDCAQMD) Standards and Rules
  - Placer County Air Pollution Control District (PCAPCD) Standards and Rules
  - Sacramento Metropolitan Air Quality Management District (SMAQMD) Standards and Rules

Existing Conditions

The study area for the Folsom Dam Raise is located in the Sacramento Valley Air Basin (SVAB), which includes Sacramento County, and Placer County. El Dorado County is located in the Mountain County Air Basin (MCAB) directly adjacent to the SVAB. Corresponding AQMDs for these air basins are SMAQMD, PCAPCD, and EDCAQMD. Dikes 1 through 6 are situated within the PCAPCD, and this air district's boundaries include two additional air basins besides the SVAB. The remainder of the project area lies within the jurisdictional area of the SMAQMD, with the exception of a small eastern projection of MIAD into the EDCAQMD (Figure 1-2 in Section 1.3).

Climate

Located at the southern end of the Sacramento Valley, the project area is characterized by hot, dry summers and mild, rainy winters. The surrounding mountains create a barrier to airflow that can trap air pollutants in the valley when meteorological conditions are right, and a temperature inversion exists.

Air Quality

Within Sacramento County, on-road motor vehicles are the major source of ROG, CO, and NOx emissions. Other equipment and off-road vehicles contribute substantially to ROG, CO, and NOx emissions. Fugitive dust, generated from construction, roadways, and farming operations, is the major source of PM_{10} and, to a lesser degree, $PM_{2.5}$. Residential fuel combustion also substantially contributes to $PM_{2.5}$ emissions.

Sensitive Receptors

Some locations are considered more sensitive to adverse effects from air pollution than others. These locations are termed sensitive receptors. A sensitive receptor is generally defined as a location where human populations, especially children, seniors, and sick persons are found, and where there is a reasonable expectation of continuous human exposure according to appropriate standards (e.g., 24 hour, 8-hour, and 1-hour). Sensitive land uses and sensitive receptors generally include residents, hospital staff and patients, as well as schoolteachers and students.

There are numerous sensitive receptors within 1,000 feet of the project area. Several residences to the west of Vogel Valley Road, Haley Drive, and East Hidden Lakes Drive are within 600 feet of Dikes 1, 2, and 3. Residences on Lake Court, Lakeshore Drive, and Sierra Drive are within

200 feet of Dike 4. Residences to the west of Auburn-Folsom Road are within 1,000 feet of Dike 5, parts of the Right-Wing Dam, and just over 1,000 feet from Dike 6. Many residences just off of East Natoma Street are within 1,000 feet of Dike 7. Additionally, there are many residences in The Knolls neighborhood that are within 1,000 feet of MIAD East and MIAD West.

Air Pollutants

NAAQS and CAAQS were established to protect public welfare from the following criteria air pollutants; CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and SO2. Criteria air pollutants relevant to the project were based on the existing pollutant conditions in the SVAB. Air pollutants relevant to the project and their health effects are discussed below and summarized in Table 3-4. In addition, sensitive receptors are defined and receptors near the project area are identified.

Table 3-4. Summary of Air Pollutants of Concern for the Project.

Pollutant Class	Pollutant	Existing Condition
Criteria Pollutants	CO, NO_2, O_3 (precursors: NO_x, ROG), PM_{10}, $PM_{2.5}$, and SO_2	PM_{10}, $PM_{2.5}$, CO, and ozone precursor (ROG and NOx) emissions are the primary criteria pollutants of concern associated with the project. Sacramento, Placer and El Dorado Counties have NAAQS and/or CAAQS non-attainment designations for PM_{10}, $PM_{2.5}$, and O_3. Consequently, PM_{10}, $PM_{2.5}$, CO, and ozone precursor (ROG and NOx) emissions are the primary criteria pollutants of concern associated with the project.
TACs	Diesel Particulate Matter (DPM) and Naturally Occurring Asbestos (NOA)	Local geology supports the formation of NOA, and NOA has been documented in proximity to Folsom Dam.

Ozone is a secondary pollutant that is not emitted directly into the atmosphere. Instead, it forms by the reaction of two ozone precursors – reactive organic gases (ROGs) and nitrogen oxides (NO_x) – in the presence of sunlight and high temperatures. Ozone concentrations are expressed in parts per million (ppm) or parts per billion (ppb). High ground-level ozone concentrations can reduce lung function and increase respiratory symptoms, thereby aggravating asthma, bronchitis, or other respiratory conditions including chest pains and wheezing. NO_x is used as a measurable pollutant in the evaluation of O_3 for the purpose of conformity determinations and local and state thresholds.

Inhalable particulates refer to particulate matter less than 10 microns in diameter (PM_{10}). Particulates are classified as primary or secondary depending on their origin. Primary particles are unchanged after being directly emitted (e.g., road dust) and are the most commonly analyzed and modeled form of PM_{10}. Because it is emitted directly and has limited dispersion characteristics, this type of PM_{10} is considered a localized pollutant. In addition, secondary PM_{10} can be formed in the atmosphere through chemical reactions involving emissions of ROG, NOx, and sulfur oxides (SOx). Much of the PM_{10} and fine particulates ($PM_{2.5}$) that can be breathed into the lungs is comprised of

secondary particulate matter.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) relevant to the project were determined based on AQMD guidance and the project site conditions. Ten TACs have been identified through ambient air quality data as posing the greatest health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to brain and nervous system, and respiratory disorders. TACs do not have ambient air quality standards because often no safe levels have been determined. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The TACs of interest to this project are diesel particulate matter (DPM) and NOA (naturally occurring asbestos).

Use of off-road duty diesel equipment for site grading and excavation, paving, hauling and construction activities can release DPM emissions. DPM is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solids, as well as liquid material which condenses during the dilution process. The basic fractions of DPM are elemental carbon, heavy hydrocarbons derived from the fuel and lubricating oil, and hydrated sulfuric acid derived from the fuel sulfur. The air districts have not established a quantitative threshold for significance for construction-related TAC emissions, and it is recommended that project applicants address this issue on a case-by-case basis, taking into consideration the specific characteristics of each project's proximity.

The Folsom Dam Raise Modifications project area has been identified as within an area where local geology supports the formation of NOA. SMAQMD's Air Pollution Control Officer (APCO) has determined the Copper Hills Volcanics Area in eastern Sacramento County, including the eastern portion of the City of Folsom, contains NOA at levels greater that the jurisdictional threshold in the State's Asbestos Airborne Toxic Control Measure (ATCM). NOA has been positively identified in rock formations along the Sacramento County-El Dorado County border in units that demonstrate the same geologic factors present in Cooper Hills Volcanics Area. NOA in the quantity of less than one percent has been documented in the proximity of Folsom Dam (Reclamation 2005) from samples taken in December 2005. Properties located entirely or partially within the area identified in the Copper Hills Volcanic unit must comply with the ATCM, unless a geologic evaluation by a registered geologist demonstrated the individual site does not contain NOA.

CARB has adopted two airborne toxic control measures for controlling NOA: the ATCM for Surfacing Applications and the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations. CARB and local air districts have been delegated authority by the USEPA to enforce the Federal National Emission Standards for Hazardous Air Pollutants regulations for asbestos. CARB's Fugitive Dust rule 403 also provides synchronous mitigation measures that restrict airborne dust.

Attainment Status

Placer, El Dorado, and Sacramento Counties are in attainment for all criteria pollutants except for the following:

- Placer County: Nonattainment for O_3 and PM_{10} CAAQS, Nonattainment for O_3 and $PM_{2.5}$ NAAQS;

- El Dorado County: Nonattainment for O_3 and PM_{10} CAAQS, Nonattainment for O_3 and $PM_{2.5}$ NAAQS;

- Sacramento County: Nonattainment for O_3 and PM_{10} CAAQS, Nonattainment for O_3 and $PM_{2.5}$ NAAQS.

Reducing ozone to levels below state and federal standards is one of the primary goals of the local air quality control districts. As a nonattainment area, air quality data and emission trends must be evaluated to determine how much ozone concentrations will need to be reduced to attain the standard in the future. Control measures and strategies are included as commitments in these plans to achieve the reductions in emissions of NOx and ROC necessary for the region to attain the standard. General Conformity *de minimis* levels establish a prescribed threshold for ozone precursors based on the non-attainment and maintenance classification of the air basin. A request for reclassification of the 8-hour ozone non-attainment area from "serious" to "severe" was granted by USEPA for the Sacramento Federal Ozone Nonattainment Area, which includes Sacramento and Yolo Counties and parts of Placer, El Dorado, Solano, and Sutter Counties, in June 2010, and the General Conformity *de minimis* thresholds for ozone, VOC, and NO_X were reduced from 50 tons per year to 25 tons per year.

State Implementation Plans

Due to the nonattainment or maintenance area designations for Sacramento Federal Ozone Nonattainment Area discussed above, a SIP is required for O_3, PM_{10}, and $PM_{2.5}$, and a maintenance plan for CO and PM_{10}. The status of these SIPs is summarized below (SMAQMD 2015).

- O_3: SMAQMD has been designated non-attainment for O_3 with a severe-15 classification and an attainment deadline of July 20, 2027.

- PM_{10}: SMAQMD prepared a maintenance plan approved by the USEPA in 2015.

- $PM_{2.5}$: SMAQMD prepared a $PM_{2.5}$ attainment plan for submission in 2012. A final rule for Determination of Attainment was submitted July 2013 and the rule became final in August 2013.

- CO: A maintenance plan was approved by the USEPA in 2005 for the SMAQMD and is still applicable.

Air Emission Thresholds for Federal and Local Criteria Pollutants

The Federal standards and local thresholds for short-term construction projects in Sacramento, El Dorado, and Placer Counties are shown in Table 3-5. Local emissions are calculated per county and compared to their thresholds by pounds per day, whereas Federal standards look at the project emissions in total by tons on an annual basis.

Table 3-5. Federal General Conformity and Local Air Emission Construction Thresholds Criteria Pollutants.

Criteria Pollutant	General Conformity *de minimis* threshold (tons/year)	Sacramento Metropolitan AQMD Threshold	El Dorado County AQMD Threshold	Placer County APCD Threshold
NO_x	25***	85 lbs/day	82 lbs/day	82 lbs/day
CO	100	*AAQS	*AAQS	*AAQS
SO_x	100	N/A	N/A	N/A
PM_{10}	100	80 lbs/day (with BMPs)** 14.6 tons/year	* AAQS	82 lbs/day
$PM_{2.5}$	100	82 lbs/day (with BMPs)** 15 tons/year**	*AAQS	82 lbs/day
ROG	25***	None	82 lbs/day	82 lbs/day

NO_x = nitrogen oxides
CO = carbon monoxide
SOx = sulfur oxides
PM_{10} = particulate matter 10 micrometers or less
$PM_{2.5}$= particulate matter 2.5 micrometers or less
ROG = reactive organic gases
* = default to State standard
** = 0lbs/day threshold, with BMPs standard is 80 lbs/day PM_{10} and 82 $PM_{2.5}$
*** = rates for "severe" Federal nonattainment areas [*Federal Register* (40 CFR), 1993]

3.3.4.2 Air Quality: Environmental Consequences

Methodology

The methods for evaluating impacts are intended to satisfy the Federal and State air quality requirements, including the Federal General Conformity Rule, and to disclose effects for NEPA and CEQA. Assessment focuses on short-term construction emissions because once constructed, the project would not result in operational (indirect) emissions. Combustion emissions from heavy equipment and construction worker commute trips can contribute incrementally to regional ozone concentrations over the construction period.

In coordination with SMAQMD, the Roadway Construction Emissions Model, Version 9.0 (SMAQMD 2018), was used to estimate construction emissions for the proposed project. The Roadway Construction Model assesses construction exhaust emissions for quantities of ROG, CO, CO_2, NOx, SOx, CO_2e, $PM_{2.5}$ and PM_{10}. Outputs from the model calculations can be found in Appendix C. The Roadway construction model provided an annual breakdown of the project for each year from 2022 to 2025. Maximum construction parameters were entered into the model to account for a worst-case scenario of emission quantities. The following construction sources and activities are examples of proposed project work that were analyzed for emissions:

- Onsite construction off-road equipment emissions (all criteria pollutants)
- Onsite pickup trucks, onsite haul trucks, and off-site haul trucks emissions (all criteria pollutants). Haul truck emissions to transport borrow and disposal material were included within a 30-mile radius.

- Offsite worker vehicle emissions (all criteria pollutants)
- Entrained fugitive dust emissions for paved and unpaved road entrained dust (PM_{10} and $PM_{2.5}$)
- Onsite material storage piles handling and wind erosion (PM_{10} and $PM_{2.5}$)
- Onsite excavation (cut/fill) fugitive dust (PM_{10} and $PM_{2.5}$)

The results from the Roadway Construction Emissions Model were used to assess the projects emissions against General Conformity *de minimis* thresholds and state and local air district CAAQ thresholds. All emissions were combined and not separated by county. Emission results of CO_2 and CO_{e2} are addressed under Climate Change in Section 3.3.5.

Basis of Significance

A project would significantly affect air quality if it would:

- Contribute on a long-term basis to any existing or projected air quality violation;
- Expose sensitive receptors (such as schools, residences, or hospitals) to substantial pollutant concentrations; or
- Not conform to applicable Federal and State standards or local thresholds.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
- Result in other emissions (such as those of odors) adversely affecting a substantial number of people

3.3.4.3 Air Quality: Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR. Although air quality impacts would be less than significant with mitigation under the 2017 SEIS/EIR, the air quality impacts are expected to be even lower and require less mitigation under Alternative 2 below.

3.3.4.4 Air Quality: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

Average daily emissions (lbs/day), total construction emissions (tons/year), and maximum daily emissions (lbs/day) were calculated from the Roadway Construction Emissions Model for ROG, NOx, PM_{10}, and $PM_{2.5}$ and SO_x to evaluate emissions against AQMD and federal thresholds. All criteria pollutant emissions from activities associated with the implementation of Alternative 2 are

summarized in Tables 3-6 and 3-7. Unmitigated emissions in pounds per day are under the thresholds for each pollutant in each air district (Table 3-6). The 2017 SEIS/EIR estimated unmitigated pounds per day emissions to be higher for all pollutants, all years, and all air basins. NO_x and PM_{10} were estimated to exceed thresholds under the 2017 Proposed Project for multiple years. Mitigated emissions in tons/day are under the thresholds for each pollutant in each air district (Table 3-7). The 2017 SEIS/EIR estimated mitigated pounds per day emissions to be higher for all pollutants, all years, and all air basins. CO and PM_{10} were estimated to exceed thresholds under the 2017 Proposed Project for multiple years. Unmitigated emission calculations would not include AQMD Best Management Practices (BMPs) and basic construction emission control practices or use of emission reducing Tier 4 off-road equipment and other proposed mitigation measures discussed herein. In contrast, mitigated emissions calculations are based on employing all these mitigation measures and thus constitute the best estimate of the proposed project's construction emissions.

Table 3-6. Unmitigated project construction emissions: average pounds per day for each year of construction work project wide.

Year	ROG*	NOx*	CO*	PM_{10}*	$PM_{2.5}$*	SO_x*
2022	0.47	4.4	4.7	18.5	4	<1
2023	0.57	5.5	6	19.1	4.13	<1
2024	0.57	5.5	6	19.1	4.13	<1
2025	0.1	0.78	1.01	0.05	0.03	<1
SMAQMD Thresholds (lbs/day)	N/A	85	N/A	80	82	N/A
PCAPCD Thresholds (lbs/day)	82	82	N/A	82	N/A	N/A
EDCAQMD Thresholds (lbs/day)	82	82	N/A	N/A	N/A	N/A

Note: *Pollutant (lbs/day)

Table 3-7. Mitigated project construction emissions: average pounds per day for each year of construction work project wide.

Year	ROG*	NOx*	CO*	PM_{10}*	$PM_{2.5}$*	SO_x*
2022	0.40	1.6	7.9	20.3	4.5	<1
2023	0.38	1.7	7.9	21	4.4	<1
2024	0.17	0.75	3.6	7	1.6	<1
2025	0.06	0.27	1.32	0.02	0.15	<1
SMAQMD Thresholds (lbs/day)	N/A	85	N/A	80	82	N/A
PCAPCD Thresholds (lbs/day)	82	82	N/A	82	N/A	N/A
EDCAQMD Thresholds (lbs/day)	82	82	N/A	N/A	N/A	N/A

Note: *Pollutant (lbs/day)

Table 3-8 provides the estimated unmitigated project construction emissions in tons per year. These results show PM_{10} exceedance for SMAQMD and PCAPCD in construction years 2022 through 2024. Exceedance ranges from 18.5 to 18.7 tons/year compared to the 14.6 (SMAQMD) and 14.9 (PCAPCD) tons/year thresholds. The 2017 SEIS/EIR estimated unmitigated tons per year

emissions to be similar except for NO_x emissions exceedance for one year. The current estimates are higher for CO than the 2017 but still under the Federal threshold. Table 3-9 provides the estimated mitigated project construction emissions upon implementing the mitigation measures proposed (e.g. mitigated emissions). Construction years 2022 and 2023 still exceed PM_{10} thresholds with 20.7 tons/year. The proposed mitigation measures would typically reduce most types of emissions and these would not exceed Federal General Conformity *de minimis* thresholds or local AQMD thresholds. The 2017 SEIS/EIR emissions were calculated generally similar except that CO emissions were estimated to be lower and PM_{10} higher and exceeding for the last few years on construction.

Table 3-8. Unmitigated project construction emissions: total tons per year for each year of construction work.

Year	ROG*	NOx*	CO*	PM_{10}*	$PM_{2.5}$*	SO_x*
2022	0.47	4.4	4.7	18.5	4	<1
2023	0.54	5.2	5.7	18.7	4.0	<1
2024	0.54	5.2	5.7	18.7	4.0	<1
2025	0.1	0.83	1.0	0.05	0.04	<1
SMAQMD Thresholds (tons/year)	N/A	N/A	N/A	14.6	15	N/A
PCAPCD Thresholds (tons/year)	14.9	14.9	N/A	14.9	N/A	N/A
EDCAQMD Thresholds (tons/year)	14.9	14.9	N/A	N/A	N/A	N/A
Federal Thresholds (tons/year)	25	25	100	100	100	0

Note: *Pollutant (tons/year)

Table 3-9. Mitigated project construction emissions: total tons per year for each year of construction work.

Year	ROG*	NOx*	CO*	PM_{10}*	$PM_{2.5}$*	SO_x*
2022	0.39	1.6	7.6	20.7	4.5	<1
2023	0.37	1.5	7.6	20.7	4.3	<1
2024	0.17	0.7	3.5	6.8	1.4	<1
2025	0.06	0.27	1.3	0.02	0.01	<1
SMAQMD Thresholds (tons/year)	N/A	N/A	N/A	14.6	15	N/A
PCAPCD Thresholds (tons/year)	14.9	14.9	N/A	14.9	N/A	N/A
EDCAQMD Thresholds (tons/year)	14.9	14.9	N/A	N/A	N/A	N/A
Federal Thresholds (tons/year)	25	25	100	100	100	0

Note: *Pollutant (tons/year)

The models used to estimate equipment emissions during construction of the proposed project all indicate that federal air quality thresholds for ROG, NOx, CO, PM_{10}, $PM_{2.5}$ and SOx would not be exceeded as long as the best management practices (e.g., mitigation measures) addressed in Section 3.6.5 are employed. Since these mitigation measures would be utilized, project construction emissions

should not violate federal *de minimis* air quality thresholds and are therefore deemed less than significant using the federal thresholds as the basis of assessment. Therefore, a conformity determination is not required.

These models also indicate that local AQMD thresholds for ROG, NOx, and $PM_{2.5}$ would not be exceeded during any given year of project construction if the mitigation measures cited are used. The project will not exceed annual federal general conformity *de minimis* thresholds for PM10 (100 tons per year for non-attainment areas) but would likely exceed the Placer County APCD daily thresholds and annual cumulative threshold for PM10 (14.9 tons/year). If PM_{10} emissions do indeed exceed local AQMD thresholds, this exceedance would ultimately be mitigated through payment of an appropriate mitigation fee (e.g., via "off-site" mitigation) to the applicable local AQMDs as addressed in Section 3.3.4.5. This would fully compensate for the excess PM_{10} emissions. Given this, the temporary nature of construction emissions, and the strong likelihood that construction emissions would not exceed local AQMD thresholds for ROG, NOx, and $PM_{2.5}$, the proposed project's construction emissions would be short-term and less than significant using the local AQMD thresholds as the basis of assessment for any given construction year. Overall, the proposed project's temporary impacts to air quality would also be less-than-significant with mitigation for any given construction year.

Construction Emissions of TACs

TACs of interest to this alternative are DPM and NOA. Sensitive receptors are as close as 200 feet to the project boundary and sensitive receptors within 1,000 feet of the construction could be subjected on a short-term basis to DPMs and criteria pollutants from construction equipment and vehicles. However, health risks associated with exposure to carcinogenic substances are typically measured over 70-years of exposure. Because the proposed project is for a limited construction period of 4 years rather than a long-term installation, and many of the project phases would affect sensitive receptors on an interim basis for a maximum of two years, the potential human exposure to DPM is considered short-term. The majority of traffic near sensitive receptors would consist of exposure to on-site pickup trucks and on-site haul trucks rather than heavy equipment operations. Implementation of required basic construction emission control practices, the construction PM, fugitive dust and exhaust emission mitigation measures would substantially reduce DPM emissions to less than one lb/hr. Consequently, the project's health risks associated with DPM would be less-than-significant by incorporating-mitigation as specified below in Section 3.3.4.5.

Construction workers and adjacent sensitive receptors could potentially be exposed to NOA from fugitive dust sources resulting from activities such as excavation. Granitic material would not be expected to contain NOA material. The MIAD area overlies metamorphic rock and NOA could be located in this area though none has been documented at this site. Presence of NOA could also expose sensitive receptors through exposure to airborne NOA. NOA could be tracked-out on roadways by construction vehicles or become airborne on days of high wind velocity. However, required incorporation of CARB Asbestos ATCM measures and fugitive dust control measures detailed in Section 3.3.4.5 is expected to reduce this exposure to less-than-significant with mitigation.

Geologic testing per the ATCM regulations would be necessary to document that NOA is not present in areas within the vicinity of metamorphic rock (ultramafic rock) or the Copper Hills vicinity, in order to avoid ATCM regulations. Otherwise, to comply with ATCM measures, the contractor must provide an Asbestos Dust Mitigation Plan to the AQMDs before the start of any construction or

grading activity. The provisions of the dust mitigation plan would be implemented at the beginning and maintained throughout the duration of the construction or grading activity. Many of the asbestos control measures parallel the Fugitive Dust Control Plan. In compliance with asbestos regulations and Fugitive Dust Control Plans, actions would be implemented for street sweeping, speed limits, watering of soils, covering haul trucks or allowing free board space, and creating paved surfaces where specified. As a result, Alternative 2 NOA construction emissions would be less-than-significant with mitigation in the short term.

Construction Related Odor Emissions

SO_2 emissions associated with diesel fuel could emit offensive odors during construction. However, because ultra-low sulfur diesel fuel is now required in California, and less than one ton/yr of sulfur emissions would be generated by the project, the potential for diesel-related odor is minimal. Odor impacts resulting from construction activities would be less-than significant.

All adverse air quality impacts would be short term for any given construction year and less than significant with mitigation. Impacts would be less than significant in the medium term.

3.3.4.5 Air Quality: Avoidance, Minimization, and Mitigation Measures

The following mitigation measures are required to reduce air quality impacts to less-than-significant with mitigation. All of the Mitigation Measures referenced (AQ-1, AQ-2, etc.) are summarized in Table 2-4 in Appendix A.

Asbestos Dust Mitigation (AQ-1)

The following measures are required by the CARB ATCM for construction projects where the area to be disturbed is greater than one acre and naturally occurring asbestos (NOA) may be present. The project construction contractor would be required to adhere to these requirements when a given project phase would involve the disturbance of lands that may harbor NOA.

- Submit an Asbestos Dust Mitigation Plan that conforms to requirements set forth in the State of California's Asbestos Airborne Toxic Control Measures (Asbestos ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations to the AQMD of Sacramento, Placer, and El Dorado Counties with required fees. The Plan would specify dust mitigation practices sufficient to ensure that no equipment or operation emits dust that is visible crossing the project boundary line. Construction would not commence until the Asbestos Dust Mitigation Plan is approved. The Contractor would then implement the approved ADMP in areas where project construction would involve disturbing lands that may harbor naturally occurring asbestos.

- The contractor would conduct cleanup of carryout and track-out by the following methods:
  - Remove any visible track-out from a paved public road wherever vehicles exit the work site with a wet sweeper or a HEPA filter equipped vacuum device at least one time per day; or flush with water, if curbs or gutters are not present, and where the use of water will not result in a source of trackout material or result in adverse impacts on storm water drainage systems or violate any NPDES permit program. Use of blower devices, or dry

rotary brushes or brooms for removal of carryout and track out on public roads would be prohibited.
  - Install one or more of the following track-out prevention measures:
    - A gravel pad designed using good engineering practices to clean the tires of exiting vehicles;
    - A tire shaker;
    - A wheel wash system;
    - Pavement extending for not less than fifty consecutive feet from the intersection with the paved public road; or any other measure as effective as the measures listed above.

- Keep active storage piles adequately wetted or covered with tarps.

- Control for disturbed surface areas and storage piles that will remain inactive for more than seven days, which would include one or more of the following:
  - Keep the surface adequately wetted;
  - Establish and maintain surface crusting;
  - Apply non-toxic, biodegradable dust suppressants or stabilizers according to the manufacturer's recommendations;
  - Cover with tarp or vegetative cover;
  - Install wind barriers of fifty percent porosity around three sides of a storage pile;
  - Install wind barriers across open areas; or
  - Take other measures as effective as the measures listed above.

- Control for traffic on on-site roads, parking lots, and staging areas which would include:
  - A maximum vehicle speed limit of 15 miles per hour or less; and
  - One or more of the following:
    - Watering every two hours of active operations or sufficiently often to keep the area adequately wetted;
    - Apply non-toxic, biodegradable dust suppressants consistent with manufacturer's directions;
    - Maintain a gravel cover with a silt content that is less than 5 percent and asbestos content that is less than 0.25 percent, as determined using an approved asbestos bulk test method, to a depth of 3 inches on the surface being used for travel; or
    - Any other measure as effective as the measures listed above.

- Control for earthmoving activities that would include one or more of the following:
  - Pre-wetting the ground to the depth of anticipated cuts;
  - Suspension of grading operation when wind speeds are high enough to result in dust emissions crossing the property lines, despite the application of dust mitigation measures;
  - Application of water prior to any lands clearing; or
  - Any other measure as effective as the measures listed above.

- Control for off-site transport. No truck would be allowed to transport excavated material off-site unless:
  - Trucks are maintained such that no spillage would occur from holes or other opening sin cargo compartments; and

  - Loads are adequately wetted and either
  - Covered with tarps; or
  - Loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.

- Post construction stabilization of disturbed areas. Upon completion of the project, disturbed surfaces would be stabilized using one or more of the following methods;
  - Establishment of a vegetative cover;
  - Placement of at least one foot of non-asbestos-containing material;
  - Paving;
  - Any other measure deemed sufficient to prevent wind speeds of ten miles per hour or greater from causing visible dust emissions.

Fugitive Dust Emission (PM) Mitigation Measures (AQ-2)

The construction contractor would be required to implement the fugitive dust mitigation measures listed below (in addition to the asbestos mitigation measures previously mentioned):

- Limit vehicle speeds on unpaved roads to 15 miles per hour.

- Water at least every 2 hours of active construction activities or sufficiently often to keep disturbed areas adequately wet.

- Remove all visible track-out from a paved public road at any location where vehicles exit the work site. This would typically be accomplished using wet sweeping by a HEPA filter-equipped vacuum device on a daily basis.

- Install one or more of the following track-out prevention measures:
  - A gravel pad to clean the tires of exiting vehicles.
  - A tire shaker.
  - A wheel wash system
  - Pavement extending at least 50 feet from the intersection with the paved public road, or
  - Any other measure(s) as effect as the measures listed above.

- Pre-wet the ground to the depth of anticipated cuts.

- Suspend any excavation operations when wind speeds are high enough to result in dust emissions across the property line, despite the application of other dust mitigation measures.

Enhanced Fugitive Particulate Matter (PM) Dust Control Practices (AQ-3)

The construction contractor would also be required to implement the following enhanced fugitive PM dust control practices as specified by SMAQMD in Sacramento County, which includes LWD, Dike 7, and MIAD:

- For Soil Disturbance Areas:
  - Water exposed soil with adequate frequency for continued moist soil, but do not overwater to the extent that sediment flows off the project site.
  - Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
  - Install wind breaks (ex. solid fencing) on the windward side(s) of construction areas.
  - Plant vegetative ground cover in disturbed areas as soon as possible. Water appropriately until vegetation is established.

- For Unpaved Roads:
  - Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the site.
  - Treat site access to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
  - Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person would respond and take corrective action within 48 hours of receiving a complaint. The phone number of the AQMDs of Sacramento, Placer, and El Dorado would also be provided on the sign depending on jurisdiction to help ensure compliance.

Basic Construction Emission Control Practices (AQ-4)

The construction contractor would be required to implement the additional basic construction emission control practices:

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to five minutes (as required by the state airborne toxics control measure [Title 13, Sections 249(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

- Water all exposed surfaces 2 times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access/haul roads.

- Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks slated for travel along freeways or major roadways must be covered.

- Limit vehicle speeds on unpaved roads to 15 miles per hour.

- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads when necessary.

- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].

Enhanced Exhaust Control Practices (AQ-5 and AQ-6)

The construction contractor would be required to implement the following enhanced exhaust control practices (AQ-5):

- Submit to the USACE and appropriate AQMD(s) a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 hp, that would be used an aggregate of 40 or more hours during any portion of the construction project. The inventory would include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The inventory would be updated and submitted monthly throughout the duration of the project, except that an inventory would not be required for any 30-day period in which no construction activity occurs. At least 4 business days prior to the use of subject heavy-duty off-road equipment, the contractor would provide the jurisdictional AQMD(s) with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. The SMAQMD's Model Equipment List can be used to submit this information.

The construction contractor would be required to comply with the following (AQ-6):

- Model year 2010 (MY2010) or newer haul trucks would typically be used for the duration of the project. Use of these trucks would provide the best available emission controls for NO_x and PM emissions. Occasions could arise when the availability of MY2010 or newer haul trucks is limited, thereby forcing the need to use older trucks to meet construction schedule goals. In such a situation, the construction contractor would first be required to demonstrate that MY2010 or newer trucks are not available in the general project region before the use of older trucks is authorized by the USACE.

- All off-road diesel-powered construction equipment greater than 50 horsepower would meet Tier-4 off road emission standards (reference 40 CFR Part 1039), where available. In addition, if not already supplied with a factory-equipped diesel particulate filter, all construction equipment would be outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the construction 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. In the event that a certain tier engine is not available for any off-road equipment larger than 50 hp, that equipment would be equipped with the next lower tier engine (e.g., if Tier 3 is not available use Tier 2), or an engine that is equipped with retrofit controls to reduce exhaust emissions of NO_x and diesel PM to no more than the next available tier, unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. If the construction contractor proposes to use off-road diesel-powered construction equipment greater than 50 hp that does not meet Tier-4 off road emissions standards, such usage would first have to be approved by the USACE.

- Construction equipment would incorporate emissions-reducing technology such as specific fuel economy standards. Idling would be restricted to a maximum of 5 minutes, except as provided in the CARB 13CCR, Section 2485 exceptions.

Off-Site Mitigation Measures (AQ-7)

(1) Mitigation for Particulate Matter Emissions Exceeding AQMD Thresholds:

The construction contractor would provide the USACE and the applicable local AQMDs with updated and revised air quality emissions estimates prior to beginning project construction activities on a given project phase. If these estimates indicate the applicable PM_{10} threshold and/or the applicable $PM_{2.5}$ threshold would be exceeded despite the use of the mitigation measures and BMPs addressed previously, the contractor would coordinate with AQMDs to determine the level of mitigation fees (including administrative fees), if any, that must be paid. For SMAQMD, the cost of reducing one ton of PM emissions as of July 1, 2017 (no change in 2018, 2019, 2020, or 2021) is $30,000. For PCAPCD, the cost of reducing one ton of PM emissions as of January 1, 2018 (no change in 2019, 2020, or 2021) is $18,790.

The construction contractor would provide monthly estimates of actual PM_{10} and $PM_{2.5}$ emissions to the USACE and the applicable AQMDs once construction activities begin. These emissions reports would, if necessary, indicate the emissions that occurred within Sacramento County and El Dorado County for SMAQD and EDCAQMD and the emissions that occurred within Placer County for PCAPCD. When a monthly report indicates PM emissions exceeded the applicable local AQMD threshold, the contractor would be required to pay the appropriate mitigation fee and any associated administrative fee. These compensatory mitigation fees would be paid to the applicable local AQMD. For example, if a particular project phase entailed work in both Sacramento County and Placer County and PM_{10} emissions in Sacramento County were 1 ton over the SMAQMD threshold while PM_{10} emissions in Placer County were 2 tons over the PCAPCD threshold, then the mitigation fee paid to SMAQMD would be for a 1 ton overage while the mitigation fee paid to PCAPCD would be for a 2 ton overage.

(2) Mitigation for NOx Emissions Exceeding SMAQMD and/or PCAPCD Thresholds:

As discussed, modeling performed by the USACE as part of this DSEIS/EIR indicated that construction emissions of NOx would not exceed local AQMD thresholds for NOx. If, however, the construction contractor's monthly reports of estimated actual NOx emissions (see above) reveal that such NOx thresholds have been exceeded during construction of a particular project phase, then the construction contractor would be required to pay the appropriate mitigation fee an any associated administrative fee. These compensatory mitigation fees would be paid to the applicable local AQMD, similar to how compensatory mitigation fee payments would be made for exceeding PM thresholds. For SMAQMD, the cost of reducing one ton of NOx emissions as of July 1, 2017 (no change in 2018, 2019, 2020, or 2021) is $30,000; however, this fee is typically adjusted every year. For PCAPCD, the cost of reducing one ton of NOx emissions as of January 1, 2018 (no change in 2019, 2020, or 2021) is $18,790.

3.3.5 Climate Change

3.3.5.1 Climate Change: Environmental Setting

Regulatory Setting

The following Federal, State, and local laws and regulations apply to the resources covered in this section. Descriptions of the laws and regulations can be found in Chapter 5.0.

Federal

- Mandatory Greenhouse Gas Reporting Rule

State

- Assembly Bill 32, Global Warming Solutions Act of 2006
- California Clean Air Act of 1998
- Executive Order B-30-15
- Executive Order S-3-05
- Executive Order S-13-08
- Senate Bill 97
- Air Resources Board AB 32 Scoping Plan
- State Regulations on Greenhouse Gases and Climate Change

Local

- El Dorado County Air Quality Management District
- Placer County Air Pollution Control District
- Sacramento Metropolitan Air Quality Management District

Federal

There are currently no Federal GHG emission thresholds. Therefore, the USACE will not utilize the quantitative CEQA significance threshold for industrial projects, propose a new GHG threshold, or make a NEPA significance impact determination for GHG emissions anticipated to result from any of the alternatives. Rather, in compliance with NEPA implementing regulations, the anticipated emissions are disclosed for each alternative without expressing a judgment as to their significance. Guidance was included in the 2017 SEIS/EIR, Section 3.7.1, as the document was released prior to rescinding the thresholds.

State

On June 1, 2005, Executive Order S-3-05 (E.O. S-3-05) was signed by Governor Arnold Schwarzenegger. “The order established greenhouse gas reduction targets, created the Climate action plan Team, and directed the Secretary of Cal/EPA to coordinate efforts with meeting the targets with the heads of other state agencies. The order also requires the Secretary to report back to the Governor and Legislature biannually on progress toward meeting the GHG targets, GHG impacts to California, and Mitigation and Adaptation Plans.” (California Climate Change Portal, 2015)

The following year, the Global Warming Solutions Act of 2006, commonly referred to as Assembly Bill 32 (AB 32), required the California Air Resources Board (CARB) to develop regulations and policies to regulate sources of emissions of GHGs that cause global warming. CARB was directed to create a program that would reduce statewide emissions to 1990 levels by 2020, a reduction of approximately 21.7% below emissions expected under a "business as usual scenario." These reductions were to be met by adopting regulations that maximize feasible technology and are cost effective while improving efficiency in land use sectors (i.e. energy, transportation, waste).

In addition, AB 32 directed CARB to develop a scoping plan to help lay out California's strategy for meeting the goals. This scoping plan was to be updated every 5 years and would be funded through fees collected annually from large emitters of GHGs such as oil refineries, electricity power plants, cement plants, and food processors.

Senate Bill 97 (SB 97) approved by legislature in 2007, was an act relating to the California Environmental Quality Act (CEQA) that addressed GHGs. Specifically, SB 97 required Office of Planning and Research to prepare and develop proposed guidelines addressing the analysis and mitigation of greenhouse gases for the implementation of CEQA by public agencies. The Amendments to the CEQA Guidelines were adopted by the California Natural Resources Agency (formerly Natural Resources Agency) on March 18, 2010.

Local

The local air quality districts within the project boundaries oversee air quality standards in their respective areas, and also provide guidance for addressing GHG emissions and mitigation in CEQA documents. While El Dorado air quality districts have not adopted thresholds of significance for GHGs, SMAQMD and PCAPCD have. On October 23, 2014, SMAQMD adopted Resolution 2014-028 that established recommended thresholds for GHGs. Following in November 2014, SMAQMD updated Chapter 6 of SMAQMD's CEQA Guide to Air Quality Assessment to provide guidance for agencies to specifically deal with GHG emissions, and included SMAQMD's recommended thresholds, this has been revised in 2015 and 2020 (SMAQMD 2020). On October 13, 2016, PCAPCD adopted the Review of Land Use Projects under CEQA Policy that established a threshold of significance for criteria pollutants and greenhouse gases. This serves as guidelines for the PCAPCD to use when recommending mitigation measures for projects as well.

Potential Environmental Effects

CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. CEQA requires that the cumulative impacts of GHG, even impacts that are relatively small on a global basis, need to be considered and if significant, consider feasible alternatives and mitigation measures that would substantially reduce significant adverse environmental effects.

Existing Conditions

Warming of the climate system is now considered to be unequivocal (IPCC 2007). Global average surface temperature has increased approximately 1.33° F over the last 100 years, with the most severe warming occurring in the most recent decades. In the 12 years between 1995 and 2006,

11 years ranked among the warmest years in the instrumental record of global average surface temperature (going back to 1850). Continued warming is projected to increase global average temperature between 2 and 11 °F over the next 100 years (IPCC 2007).

The causes of this warming have been identified as both natural processes and as the result of human actions. Increases in greenhouse gas (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 solar radiation that has hit the Earth and is reflected back into space. The six principal GHGs of concern are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

According to the US Global Change Research Program 3rd National Climate Assessment (USGCRP 2014), climate change is already affecting the American people in far-reaching ways. Certain types of extreme weather events with links to climate change have become more frequent and/or intense, including prolonged periods of heat, heavy downpours, and, in some regions, floods and droughts. In addition, warming is causing sea level to rise and glaciers and Arctic sea ice to melt, and oceans are becoming more acidic as they absorb carbon dioxide. These and other aspects of climate change are disrupting people's lives and damaging some sectors of our economy.

3.3.5.2 Climate Change: Environmental Consequences

Methodology

The proposed construction activities would use large, diesel-fueled construction vehicles during all phases of the project. The partial degrade of dike crowns would result in emissions from bulldozers and graders, as well as emissions from the haul trucks used to dispose of material. The construction of concrete floodwalls would result in emissions from haul trucks and other equipment. Diesel-powered pavers and haul trucks for borrow materials would be used for the reconstruction of the dike crowns. Trucking material in from borrow sites for an earthen raise would increase the total GHG emissions for this project.

In addition to the construction vehicles, mixers, and haul trucks involved in the actual construction of the project, there would also be GHG emissions from the workforce vehicles. Workers would commute from their homes to the construction site and park in the staging area. Workers are assumed to commute no farther than 20 miles from the construction site based on the availability of housing and the urban setting of the project. During construction, there may be times when large construction vehicles on the roads slow regular traffic, increasing emissions from vehicles that use the roads on a regular basis.

All construction-related emissions for the proposed project were estimated using SMAQMD's most recent version of the Road Construction Emissions Model (version 9.0). The SMAQMD Road Construction Emissions Model 9.0 (RCEM) was based on a collaboration among SMAQMD, California Department of Transportation (Caltrans), CARB, and the USEPA.

The Folsom Dam Raise Modifications project includes distinct project phases that would each be constructed during a 2 to 4-year duration and would occur during the period from early 2022 to late 2025. For each portion of the project, parameters were directly input into the data section of the model

which calculates emissions based on various factors such as the size of the project area(s), types and number of construction equipment, number of workers required, and the amount of fill (ex. soil, concrete, rock) and other materials to be transported. The RCEM creates default values based on the project parameters, and these values change to reflect the percentage, or amount of time each piece of equipment would be used during each construction phase. Outputs from the RCEM runs produced for each of the project phases are provided in Appendix C.

Basis of Significance

It is unlikely that any single project by itself would have a significant impact on climate change. 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, 2007). The impacts of the proposed project related to climate change were evaluated using the criteria listed below. For this analysis, an effect pertaining to climate change was analyzed based on draft NEPA guidance published by CEQ and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.) An effect was considered significant if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The following significance criteria were specifically used to determine the significance of potential GHG emissions from the proposed project for CEQA purposes only:

- If, during a given project phase, project construction emissions within Placer County exceed the PAPCD threshold of 10,000 metric tons CO_2e per year; or

- If, during a given project phase, project construction emissions within Sacramento County exceed the SMAQMD threshold of 1,100 metric tons CO_2e per year.

3.3.5.3 Climate Change: Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR. Although greenhouse gas emissions would be less than significant with mitigation under the 2017 SEIS/EIR, the greenhouse gas emissions are expected to be even lower and require less mitigation under Alternative 2 below.

3.3.5.4 Climate Change: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

Construction emissions associated with Alternative 2 would be produced for approximately 4 years. At the time of this analysis, this period would begin in 2022 and end in 2025. Table 3-10 contains estimated total CO_2e emissions by the proposed project during each of the construction years

and compares unmitigated emissions to mitigated emissions. The mitigation measures referred to are those listed in Section 3.3.4 (Air Quality), excluding mitigation measures (AQ-1 through AQ-6). Table 3-10 also provides these same estimated emissions, but the "Mitigated" columns assume mitigation measures AQ-1 through AQ-6 are employed. Since the project would incorporate these mitigation measures, Table 3-10 provides the best estimate of potential CO_2e emissions.

Table 3-10. Estimated CO_2e emissions with mitigation by the proposed project during each year of project construction.

Year	Placer County Unmitigated CO_2e (metric tons per year)	Placer County Mitigated CO_2e (metric tons per year)	Sacramento County Unmitigated CO_2e (metric tons per year)	Sacramento County Mitigated CO_2e (metric tons per year)
2022	635	724	611	839
2023	628	715	901	766
2024	628	242	901	766
2025	0	0	187	188
PCAPCD Threshold	N/A	10,000	N/A	N/A
SMAQMD Threshold	N/A	N/A	N/A	1,100

Note: All emissions were estimated using SMAQMD's Road Construction Emissions Model, Version 9.0. EDCAMD has no thresholds established for CO_2 or CO_2e.

Based on the RCEM, the proposed project is calculated not exceed PCAPCD's CO_2e threshold of 10,000 MT (metric tons) CO_2e per year or SMAQMD'S threshold of 1,100 MT CO2e per year. USACE would adhere to mitigation measures in Table 2-4 in Appendix A in ensure that impacts to climate change are minimized. Given this, the Proposed Project's effects on climate change would also be rendered less-than-significant in the short-term. The 2017 SEIS/EIR estimated CO_{2e} emissions to be higher for unmitigated and mitigated tons per year. Most construction year were estimated to exceed SMAQMD threshold (8,135 mitigated metric tons for the entire project) and requiring the payment of compensation mitigation as stipulated in mitigation measure CC-2. With this mitigation, the 2017 impacts would have been rendered less-than-significant.

The proposed project would not produce long-term GHG emissions but could address foreseeable future climate change impacts that would result in beneficial management related to flood risk reduction, dam safety, and public health. These benefits would not be inhibited by climate change itself, nor the purpose of the project given the greater surcharge zone and ability to delay operation for the main dam emergency gates and prolonged outflows at or below the 160,000 cfs threshold. Though the proposed project won't necessarily sequester GHG emissions, it would prevent extra carbon productions. Project emissions are short-term construction emissions, and the project is expected to have long-term benefits from the prevention of extra carbon production from the demolition, repair, and reconstruction of flood induced infrastructure losses associated with a catastrophic flood event. Since the proposed project would not significantly affect climate change during project construction and since it would have no adverse effects on climate change following project completion, it would also have no cumulatively significant effect in the long-term. Instead, the proposed project may ultimately help counteract future adverse climate change effects on the local and regional environment.

3.3.5.5 Climate Change: Avoidance, Minimization, and Mitigation Measures

Section 3.3.4 of Air Quality discusses various BMPs and other mitigation measures that would be used during construction of the proposed project to help minimize potentially adverse air quality impacts. Many of these actions would also help reduce GHG emissions.

Table 2-4 in Appendix A, Mitigation Measure CC-1: The construction contractor would be required to submit monthly estimates of actual construction emissions to the USACE and applicable local AQMDs. If these monthly reports show that emissions may eventually exceed either of the two applicable CO_2e thresholds (i.e. PCAPCD, or SMAQMD thresholds), the contractor would be required to prepare a GHG emissions reduction plan for approval by the USACE, then implement the approved plan. Elements of such a plan could include one or more of the following:

- Minimize the idling time of construction equipment to no more than 3 minutes or shut equipment off when not in use.
- Encourage carpools, shuttle vans, and/or alternative modes of transportation for construction worker commutes.
- Use of CARB-approved low carbon fuel.
- Use of equipment with new technologies (repowered engines, electric drive trains).

Table 2-4 in Appendix A, Mitigation Measure CC-2: If actual CO_2e emissions during construction of a given project phase do exceed either of the two thresholds, then compensatory mitigation would be provided in the form of purchasing sufficient carbon credits to mitigate for the excess CO_2e. Carbon offset credits would be purchased by the construction contractor and potential sources for these credits include; CAPCOA GHG Reduction Exchange Program, the Climate Action Reserve, the American Carbon Registry, or a similar carbon credit registry that is acceptable to the applicable local AQMD and the USACE. Thus, if the actual CO_2e emissions of a particular project phase exceed the PCAPCD significance threshold for CO_2e, or the SMAQMD significance threshold for CO_2e, the purchase of carbon credits would reduce the project's climate change effect to less-than-significant. For SMAQMD, the cost of reducing one ton of CO_2e emissions as of July 1, 2017 (no change in 2018, 2019, 2020, or 2021) is $30,000; however, this fee is typically adjusted every year. For PCAPCD, the cost of reducing one ton of CO_2e emissions as of January 1, 2018 (no change in 2019, 2020, or 2021) is $18,790.

It is noted that the above compensatory mitigation measure would only be triggered under the following scenarios: (1) Project construction emissions that occur within Placer County exceed the PCAPCD threshold of 10,000 MT CO_2e per year; (2) Project construction emissions that occur within Sacramento County exceed the SMAQMD recommended threshold of 1,100 MT CO2e per year, regardless of the county in which the emissions are generated.

3.3.6 Aesthetics and Visual Resources

3.3.6.1 Aesthetics and Visual Resources: Environmental Setting

Regulatory Setting

There are no Federal or State laws regulating visual resources.

Existing Conditions

Folsom Lake is a significant visual feature in the regional landscape. The lake and shoreline contrast sharply with the nearby rolling, wooded foothills. Visual quality is highest in winter and spring when reservoir levels are high. As summer progresses, reservoir drawdown typically exposes a ring of bare soil along the shoreline, negatively affecting visual quality. Major viewer groups are the residents of nearby areas and recreationists using the reservoir and shoreline. However, there are no designated scenic vistas or scenic highways in the project area.

Downstream of Dikes 1 through 6 contains views of grasslands, oak woodlands, and wetlands. Several unimproved recreation trails are visible in the area. Auburn-Folsom Road is visible in some of these locations. The existing trail on top of Dikes 1 through 6 has views of Folsom Lake and the shoreline. The areas surrounding Dikes 7 and 8 are similar to that of Dikes 1 through 6, only with some visibility from Folsom Lake Crossing and E. Natoma Street.

The LWD and RWD have little viewshed from any residential areas. An existing trail follows the crest of MIAD, providing trail users with sweeping views of Folsom Lake and the general area surrounding MIAD. The land immediately south of MIAD and north of Green Valley Road was heavily disturbed by Reclamation's safety improvements to MIAD, which were completed in 2016. Most of this land has since been restored to pre-construction topography and vegetated with native grasses and forbs. However, some access roads remain along with other small disturbed patches and vegetation is rather sparse, thereby lowering the visual appeal of this area.

3.3.6.2 Aesthetics and Visual Resources: Environmental Consequences

Methodology

Evaluation of the project's potential impacts on visual resources was based on a review of scenic vistas and landscapes that could be affected by project-related activities. Visual contrasts were examined, which included evaluations of changes in form, size, colors, project dominance, view blockage, and duration of impacts. Other elements, such as natural screening by vegetation or landforms, placement of project components in relation to existing structures, and likely viewer groups, were also considered.

Basis of Significance

The thresholds of significance encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and intensity. The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. A proposed alternative would result in a potentially significant impact to visual resources if it would:

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

3.3.6.3 Aesthetics and Visual Resources: Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR and the impacts to visual resources around Folsom Reservoir would be the same as those described in the 2017 SEIS/EIR and would be less than significant with mitigation.

3.3.6.4 Aesthetics and Visual Resources: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

There are no designated scenic views or scenic highways in the project area. During the four-year construction period of the Tainter gates, staging would be at the "overlook" area and possibly the CCAO area yard, which are not publicly accessible or visible areas. Therefore, construction-related effects on aesthetics and visual resources are considered less than significant because construction is temporary and existing views would not be obstructed.

The 3.5-foot raise of the dikes and dams, and other construction activities, may temporarily impair visual resources during each construction period. Increased construction traffic on Auburn Folsom Road would affect views of the area from several homes near the area and may be visible by recreation users on the trails. The flagmen and turning lanes, as well as construction vehicles, would be visible at certain times of the day.

The recreational trail that runs along the crest of Dikes 1 and 2 as well as a portion of Dike 3 provide only limited views of Folsom Lake. These views would be restricted during project construction since the public would not have access to the dike trail. However, the public would have access to other areas east of the dikes that afford lake views. Recreational users of this part of the FLSRA (e.g. Granite Bay area) would be exposed to construction work and disturbance during project construction, thereby temporarily reducing aesthetic values of the immediate vicinity. A few residences on Vogel Valley Road, located immediately west of Dike 1, would be exposed to partial views of construction work but several residences on this road would not be able to see this due to oak woodlands between the dike and the subject road.

The existing trail on top of Dikes 4, 5, and 6 has views of Folsom Lake and various habitats. During construction, recreationists would not have access to the trail on top of the dikes and would need to utilize the trail detour, which would not have views of the reservoir because of its location on

the downstream side of the dikes. The trail detour would instead provide views of natural areas such as grasslands, oak woodlands, and other habitats. Proposed staging areas on the land side (downstream side) of Dikes 4, 5, and 6 would be severely disturbed during construction, temporarily converting these areas from largely annual grasslands. People boating in Folsom Lake and using the recreation facilities near the Beal's Point parking lot and the northern Beal's Point campground would be exposed to construction activities that have a temporary adverse impact on visual resources. A few residences located immediately north of the northern end of Dike 4 have direct views of this dike and the proposed staging areas adjacent to the dike. Project construction work would temporarily degrade these views. However, the construction of the concrete floodwall at the crest Dike 4 would not eliminate or further obstruct existing views of Folsom Lake from these residences.

Construction of the floodwall on top of the RWD would be visible to users of the recreational facilities adjacent to the Beal's Point parking lot and, to a lesser degree, from a few of the campsites in the southern Beal's Point campground. Construction work necessary for improvements to the LWD, Main Dam, and the RWD would be visible to boaters on Folsom Lake and to drivers traveling nearby segments of Auburn Folsom Road, Folsom-Auburn Road, and Folsom Lake Crossing. Since the LWD, RWD, and Main Dam are all heavily disturbed features to begin with, proposed construction activities would have only minimal adverse effects on visual resources while construction is ongoing.

Construction work at Dike 7, including activities in the staging areas adjacent to these dikes, would be visible from a few residences situated between and south of these two dikes. Numerous residences immediately south of the proposed MIAD West borrow/disposal area and MIAD East riprap stockpile would be exposed to views of construction activities. Vehicles on segments of Folsom Lake Crossing, East Natoma Street, and Green Valley Road would also be able to see construction work, as would people using portions of the FLSRA that remain open near the two dikes and MIAD. Construction work on the crest of MIAD would further be visible to boaters on Folsom Lake and to users of the eastern side of the Folsom Point day use area. With the exception of the Dike 7 Office Complex staging area, proposed staging areas associated with MIAD and Dike 7 improvements would be temporarily converted from recently restored annual grasslands to disturbed staging facilities, thereby decreasing the visual qualities of these areas. Raising the two dikes and MIAD would not further limit views of Folsom Lake from nearby residences, few of which have views of the lake now. However, the temporary presence of construction work would lower the aesthetic appeal of the existing viewshed from nearby residences.

Raising the dams and dikes would adversely affect the visual character of nearby portions of the FLSRA during construction of the proposed project. The relatively small changes in the heights of these large linear features would not significantly alter the quality of views around the lake, nor would these changes obstruct existing views of the lake from nearby residences. The floodwalls at the tops of Dikes 1, 4, 5, 6, and 7 would be the most visible to the public but these relatively small (3.5 foot) floodwalls at the top of these currently large, highly engineered, and paved dikes would not significantly change the visual characteristics. The proposed staging areas severely disturbed during project construction would be restored to mimic pre-construction topography and would be planted with native grasses and forbs. In this manner, the existing visual qualities and aesthetic appeal of the staging areas would largely be restored upon construction completion. Restoration of the Dike 7 Office Complex staging area would actually improve the visual quality of this area since this staging area would also be returned to a condition very similar to that present prior to the construction of this

existing staging area. Following completion of the proposed improvements to the dikes and dams, these features would look quite similar to their existing appearance.

The proposed project would temporarily limit access to a few relatively scenic vistas, such as views of Folsom Lake from Dikes 4 through 6 and MIAD. However, there would be no long-term adverse effect on any scenic vistas. The project would not create permanent new sources of substantial light or glare. During project construction, there would be substantial damage to a few scenic resources primarily because of alterations to proposed staging areas. The existing visual character and quality of the affected dikes, dams, and staging areas would be significantly impacted during project construction and certain viewsheds would be similarly impacted because of construction activities. However, all these adverse effects would be short-term and limited to the duration of construction in each of the four project phases. Most heavily disturbed staging areas would be restored to mimic pre-construction topography and would be planted to form annual grasslands, thereby mitigating the short-term adverse impacts. Given these points and the commitment to the avoidance, minimization, and mitigation measures listed below, the proposed project's impacts to aesthetic and visual resources would be less-than-significant in the long-term with implementing MM AV-1. The 2017 SEIS/EIR also determined that impacts to aesthetics and visual resources would be less-than-significant with mitigation.

3.3.6.5 Aesthetics and Visual Resources: Avoidance, Minimization, and Mitigation Measures

The following are covered by Mitigation Measure AV-1 in Table 2-4 in Appendix A:

- Existing native trees would be preserved to the extent practicable.
- Staging areas would be located on previously disturbed lands where feasible.
- Anti-graffiti coatings would be used on the concrete floodwalls.
- Staging areas would be restored following construction by restoring pre-construction topography to the degree practicable and hydroseeding the areas with native grasses and forbs. Exceptions to this mitigation measure would include the staging areas situated on existing urban/disturbed lands, with the exception of the Dike 7 Office Complex staging area, would not be restored, but instead returned to conditions present prior to the project (examples include staging areas for LWD improvements and for the main dam improvements).

Additionally, implementation of Mitigation Measure VW-13 in Table 2-4 in Appendix A would reduce the effects of night lighting if night work is required.

3.3.7 Noise

3.3.7.1 Noise: Environmental Setting

Regulatory Setting

- City of Folsom Noise Ordinance (Folsom Municipal Code, Chapter 8.42)

- El Dorado County Noise Ordinance (El Dorado County General Plan, Public Health, Safety and Noise Element [July 2004, amended 2019])
- Placer County Noise Ordinance (Placer County Code, Chapter 9.36)
- Sacramento County Noise Ordinance (Sacramento County Municipal Code, Chapter 6.68.070)
- Noise Control Act of 1972, as amended (42 U.S.C. 4901 et seq.)

Existing Conditions

Federal and state governments provide guidelines for construction noise in regard to worker protection and protection of the general public. The proposed project is in the vicinity of four jurisdictions: City of Folsom, Sacramento County, Placer County, and El Dorado County. Construction noise from the project may impact noise sensitive receptors in each of these four jurisdictions. These noise sensitive receptors consist of both human receptors and wildlife receptors. There are no established criteria available for the wildlife species known to occur in the project area.

The City of Folsom's noise standards would be applied to this project because the City is the closest jurisdiction with the most restrictive noise ordinance. The local noise standards for Sacramento County, Placer County and El Dorado County can be found in Appendix F of the 2017 SEIS/EIR. Compliance with the City of Folsom standards would assure compliance with all other local noise standards. The noise ordinance standards for the City of Folsom are listed in Table 3-11 and are based on the L50 metric as the baseline criterion level.

Table 3-11. City of Folsom Noise Ordinance.*

Maximum Time of Exposure	Noise Metric	7 am to 10 pm (daytime)**	10 pm to 7 am (nighttime) **
Exterior Noise Standards			
30 Minutes/Hour	L_{50}	50 dBA	45 dBA
15 Minutes/Hour	L_{25}	55 dBA	50 dBA
5 Minutes/Hour	$L_{8.3}$	60 dBA	55 dBA
1 Minute/Hour	$L_{1.7}$	65 dBA	60 dBA
Any period of time	L_{max}	70 dBA	65 dBA
Interior Noise Standards			
5 Minutes/Hour	$L_{8.3}$	45 dBA	35 dBA
1 Minute/Hour	$L_{1.7}$	50 dBA	40 dBA
Any period of time	L_{max}	55 dBA	45 dBA

*Construction Noise Exemption Times: 7:00 a.m. – 6:00 p.m. Weekdays, 8:00 a.m. – 5:00 p.m. on Weekends

**5 Noise Levels Not To Be Exceeded In Residential Zone. dBA reduction for impact noise during non-exempt times
SOURCE: City of Folsom, CA Municipal Code. Chapter 8.42

Construction noise is exempt from these standards during the periods of 7:00 a.m. to 6:00 p.m. on weekdays and 8:00 a.m. to 5:00 p.m. on weekends. If construction occurs outside of these periods, the construction contractor would be required to comply with the City of Folsom exterior noise standards. In the event that the measured ambient noise level exceeds the applicable noise level standard, the applicable standard would be adjusted so as to equal the ambient noise level. For

impulse noise (such as impact pile driving or blasting), the limits are reduced by 5 dBA in the noise ordinance.

Background sound levels for residential areas are typically in the range of 40–60 dBA. This analysis assumed an average background noise level of 50 dBA. However, construction projects such as rock crushing operations at MIAD East would have an impact on this ambient noise level for the MIAD concrete floodwall construction. For the most part, the ambient noise for Dikes 1 through 7 would typically be in the range of 40-60 dBA.

The existing vibration environment in the proposed project areas is dominated by transportation-related vibration from roads. Heavy truck traffic can generate ground borne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. If the vibration level in a residence reaches 85 vibration decibels (VdB), most people will be strongly annoyed by the vibration (Federal Transit Administration, 2006). The background vibration level in residential areas is usually 50 VdB or lower, well below the 80 VdB vibration effect criteria for residences and buildings where people sleep (Federal Transit Administration, 2006).

3.3.7.2 Noise: Environmental Consequences

Methodology

Noise effects were evaluated for each construction site by comparing the expected project-generated construction noise levels with existing noise levels while taking into account the locations of sensitive receptors, and the noise criteria and standards set forth in applicable laws and regulations. A reasonable worst-case assumption is that the three loudest pieces of equipment would operate simultaneously and continuously over at least a one-hour period. Because the average background noise level in residential areas is estimated to be 50 dBA, a construction-related increase in noise to levels above 60 dBA would represent a significant effect.

Construction noise may potentially impact five jurisdictions (City of Folsom, Granite Bay, and unincorporated areas of Sacramento, El Dorado, and Placer Counties). These jurisdictions either have non-transportation noise standards based on time of day and land use sensitivity or provide exemptions for construction as long as those activities occur during the daytime. Residential areas are considered the most noise-sensitive land use and have the strictest noise standards.

Construction activity noise levels at and near the project areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. In addition, certain types of construction equipment generate impulsive noises (such as pile driving or blasting), which can be particularly annoying. Table 3-12 shows typical noise levels during different construction stages. Table 3-14 shows typical noise levels produced by various types of construction equipment.

Table 3-12. Typical Construction Noise Levels.

Construction Phase	Noise Level (dBA, Leq)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase. Source: EPA, 1971.

Table 3-13. Noise Emission Levels Typical for Construction Equipment.

Equipment	Typical Noise Level (dBA) 50 feet from Source
Backhoe	80
Bulldozer	85
Compressor	81
Generator	75
Grader	85
Jackhammer	90
Loader	85
Roller	75
Scraper	89
Truck	88
Rock Crusher	90

Source: Federal Highway Administration 1995 and Reagan and Grant 1977.

A reasonable worst-case assumption for noise is that the three loudest pieces of equipment would operate simultaneously and continuously over at least a one-hour period. The combined sound level of three of the loudest pieces of equipment listed in Table 3-13 (jackhammer, rock crusher, and truck) is 94 dBA measured at 50 feet from the source. Table 3-14, which assumes this combined source level, summarizes predicted noise levels at various distances from an active construction site. The data shown in Table 3-14 indicates that the 60 dBA threshold would be exceeded up to 2,000 feet from the point the noise is generated. These estimations of noise levels take into account distance attenuation, attenuation from molecular absorption, and anomalous excess attenuation (Hoover 1996).

The results in Table 3-14 indicate the potential for sensitive receptors within about 2,000 feet of active construction sites to be exposed to substantial increases in noise, assuming a background sound level of 50 dBA.

Table 3-14. Estimated Construction Noise in the Project Area.

Distance Attenuation Distance to Receptor (feet)	Distance Attenuation Sound Level at Receptor (dBA)
50	94
100	88
200	82
400	73
600	72
800	69
1000	66
1500	62
2000	59
2500	56
3000	53
4000	49
5280	45
7500	38

*This calculation assumes simultaneous operation of one jackhammer, one truck, and one rock crusher.

A reasonable worst-case assumption for the proposed project for vibration is the use of a hoe ram for rock crushing operations at MIAD West within 700 feet of the nearest residential area. Using 112 as the L_v (vibration level) at 25 feet for a hoe ram and the equation $L_v(D) = L_v(25\ ft) - 30\log(D/25)$ where D = distance from the source to the vibration to the sensitive receptor (Federal Transit Administration, 2006), the vibrational level in the residential area near MIAD West is calculated to be a maximum of 68.7 VbD. This worst-case of 68.7 VbD is well below the 80 VdB vibration effect criteria for residences and buildings where people sleep (Federal Transit Administration, 2006).

Basis of Significance

Adverse effects on noise and vibration are considered significant if an alternative would result in any of the following:

- Exposure to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Substantial (10 dB or greater) long-term increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or,
- Exposure of sensitive receptors or structures to ground borne vibration that exceed 80 VbD for residences and buildings where people sleep (Federal Transit Administration, 2006).

3.3.7.3 Noise: Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR. As a result, the construction-related effects to the acoustic environment, including the generation of ground borne vibration, would remain unavoidable and temporary. Implementation of mitigation measures would reduce this effect, but not to a less than significant level.

3.3.7.4 Noise: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

Main Dam and Tainter Gates. The nearest noise receptors to Folsom Dam are the Reclamation offices on the south side of the dam. The closest Reclamation office is approximately 1,000 feet away from the main dam (Figure 1-2 in Section 1.3). The replacement of the Tainter gates is expected to result in a temporary increase in ambient noise levels at the Reclamation's and DPR's offices because of the close proximity of the proposed roadway to these buildings. Additionally, a portion of the Folsom State Prison complex just across Folsom Lake Crossing road is within 2,000 feet of the main concrete dam (Figure 3-14 below). Because this area is immediately adjacent to a main road, the ambient noise level in the background would be higher than 60 dBA. Temporary noise effects associated with raising and modifying Folsom Dam would be considered less than significant because the distance between noise sources and potential receptors is large enough to attenuate noise.

There are several sites where sensitive noise receptors are located near the proposed construction areas for this portion of Alternative 2. Operation of heavy equipment over the maximum construction duration (2 years for most projects, except for the Tainter gate refinements that would last 4 years), within 2,000 feet of sensitive receptors, would result in a substantial increase in the ambient noise level exceeding the estimated background level of 50 dBA and local noise ordinance standards.

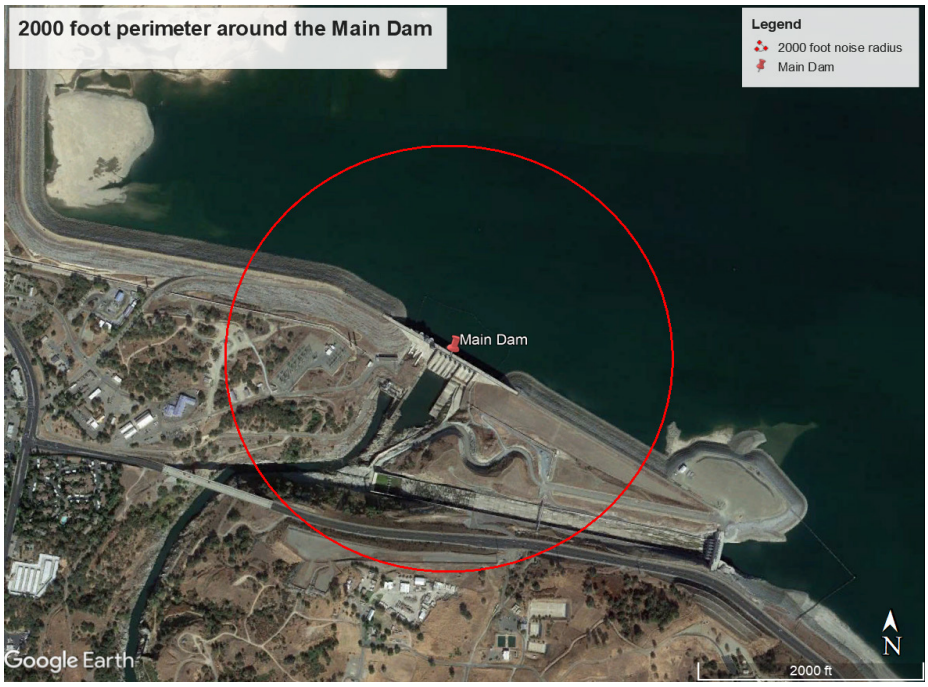

Figure 3-14. 2,000 foot noise buffer around the Folsom Main Dam.

Dike 1. Residences to the northwest of Vogel Valley Road are within 500 to 600 feet of Dike 1. Residences on Christian Lane are less than 900 feet away from Dike 1. Additionally, numerous residences near the confluence of Boulder Road and Twin Rocks Road are within 2,000 feet of Dike 1 (Figure 3-15).

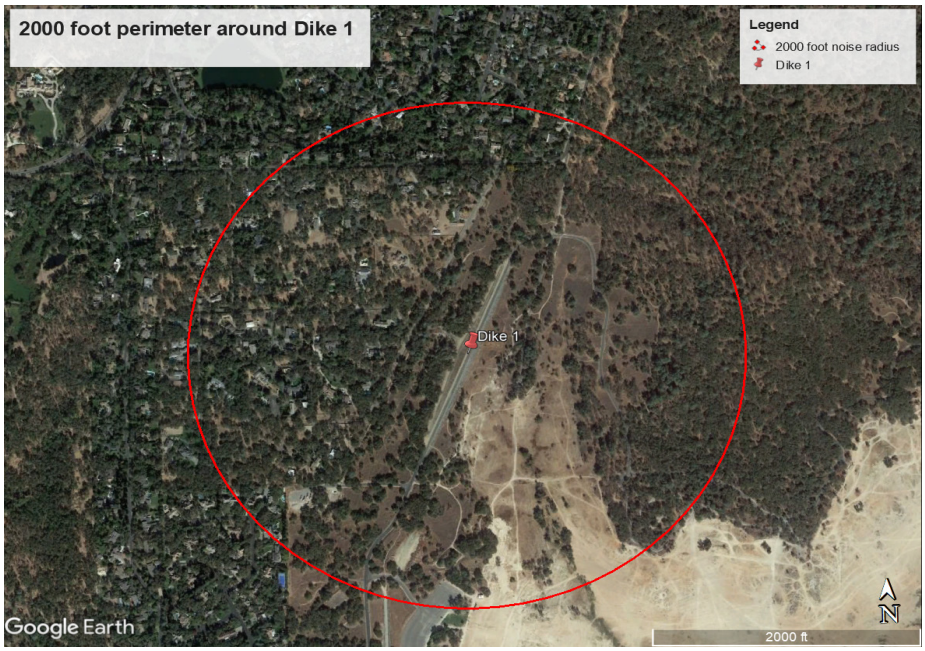

Figure 3-15. 2,000-foot noise buffer around Dike 1.

Dike 2. The Granite Bay Activity Center is within approximately 600 feet of Dike 2. Numerous residences along Haley Drive are within 1,000 feet of Dike 2. Parts of the beach and the parking lot for the boat launch are within 2,000 feet of the dike as well (Figure 3-16).

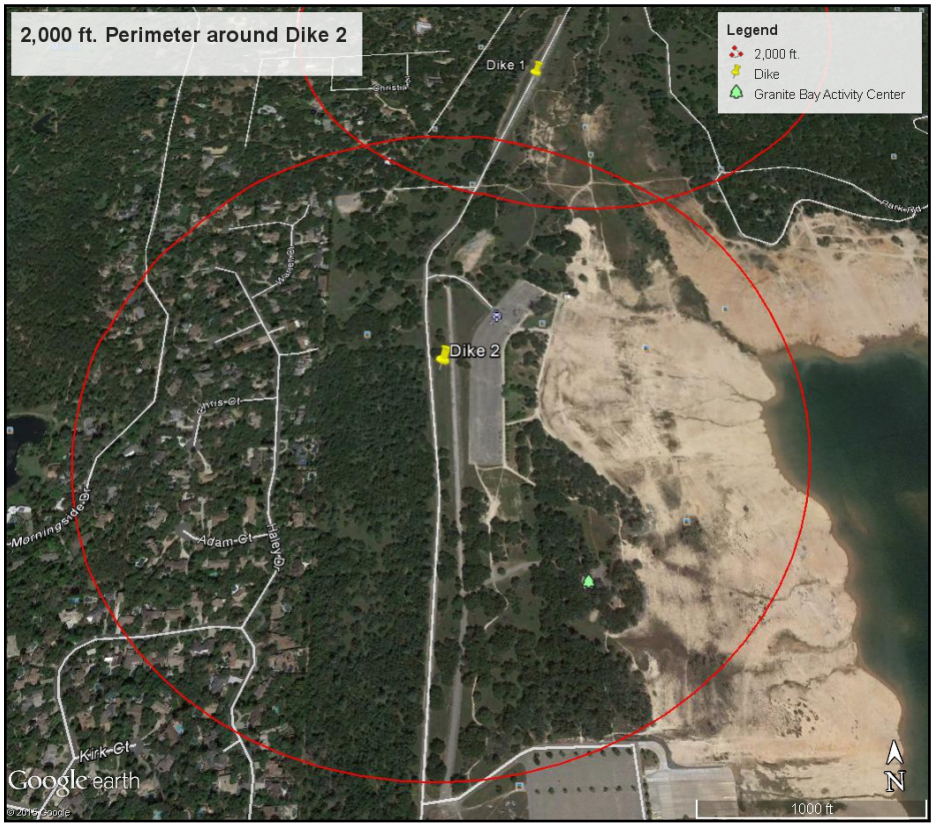

Figure 3-16. 2,000-foot noise buffer around Dike 2.

Dike 3. The Granite Bay Activity Center is approximately 600 feet north of Dike 3. Residences along East Hidden Lakes Drive and Haley Drive are within 1,000 feet of Dike 3. Residents on Kirk Court, Michael Court, and Jon Way are less than 2,000 feet from Dike 2. Parts of the boat launch and beach area are within 2,000 feet of Dike 3 (Figure 3-17).

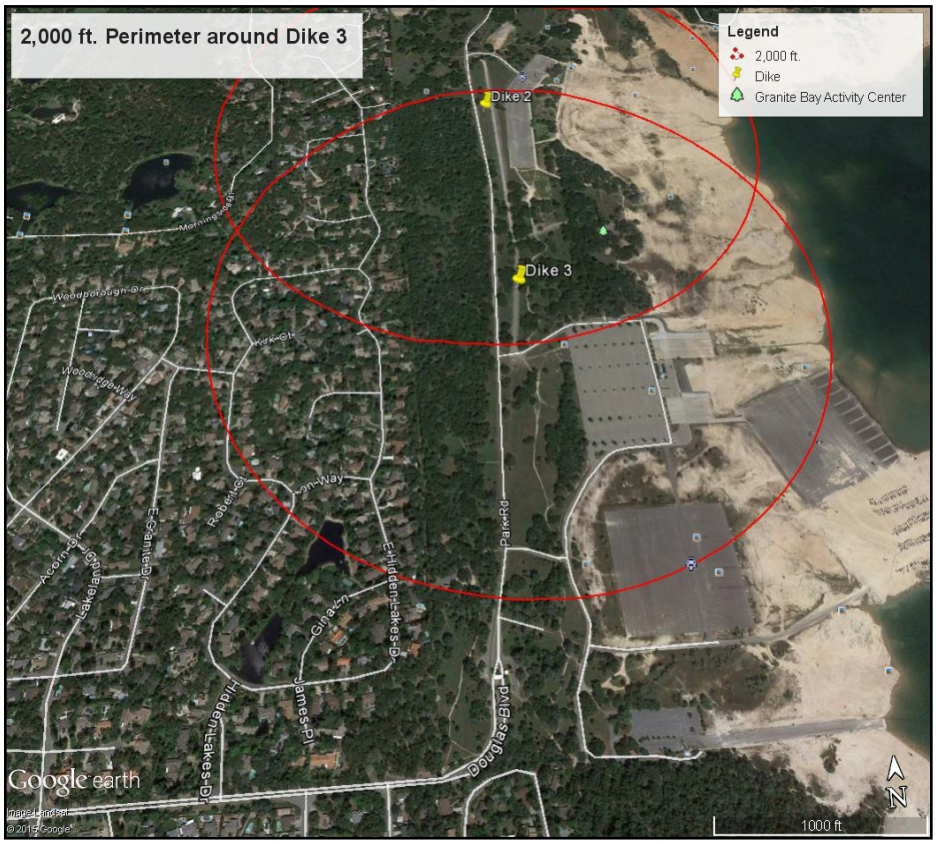

Figure 3-17. 2,000-foot noise buffer around Dike 3.

Dike 4. Residences to the north of Dike 4 near the intersection of Lake Court and Sierra Drive are within 300 feet of Dike 4. Some residences on Lakeshore Drive are within 700 feet of Dike 4. Residences near the intersection of Bronson Drive and Hill Road are within 800 feet of Dike 4. Sections of multi-use trails are within 300 feet of the dike (Figure 3-18).

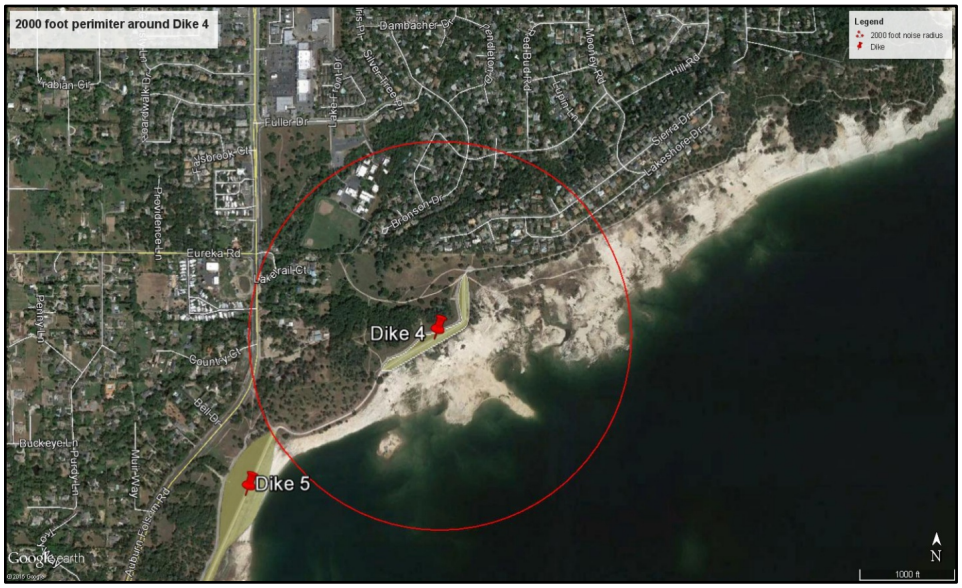

Figure 3-18. 2,000-foot noise buffer around Dike 4.

Dike 5. There are a number of residences to the west of Auburn-Folsom Road on the southwestern perimeter of the reservoir near Granite Bay, located within 600 to 1,200 feet of Dike 5. Multi-use trails are located within 200 feet of the dike. Various sections of beach are located 200 to 500 feet from Dike 5 (Figure 3-19).

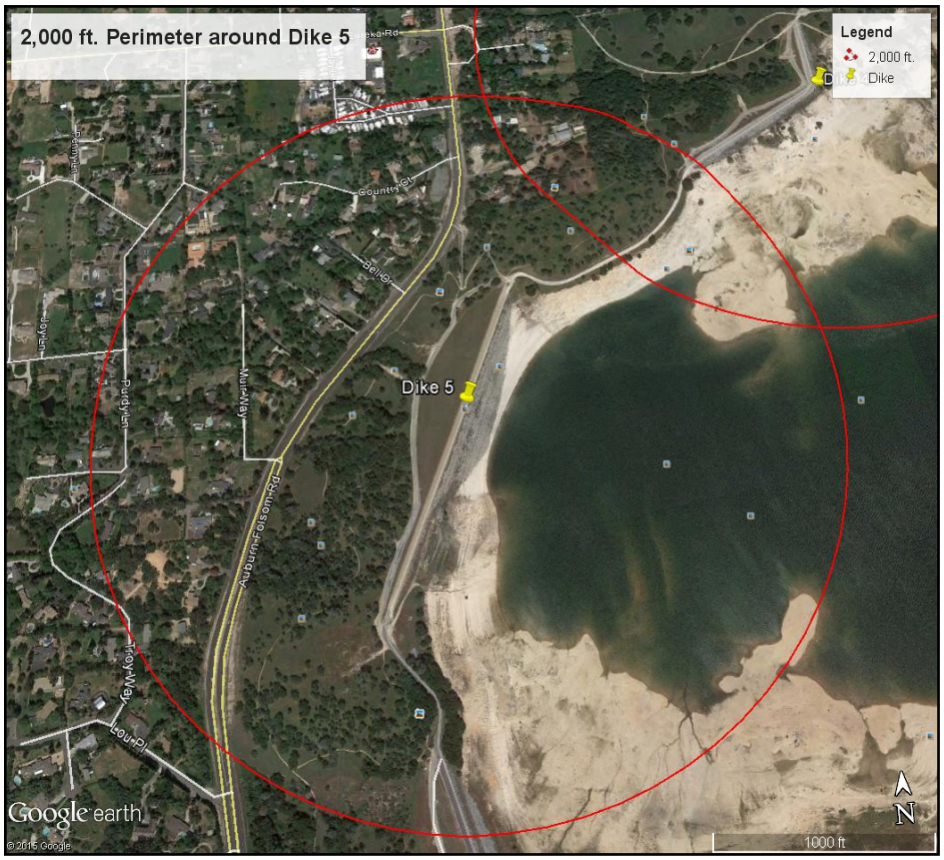

Figure 3-19. 2,000-foot noise buffer around Dike 5.

Dike 6. Campsites are located within 300 feet of Dike 6 (Figure 3-20), and multiuse trails are within 500 feet.

Figure 3-20. 2,000-foot noise buffer around Dike 6.

Right Wing Dam and Left Wing Dam. The access to Beal's Point parking lot is less than 100 feet north of the RWD. Portions of the American River Bike Trail run nearly parallel to the RWD. There are a few residences within 1,000 feet of the RWD, but none within the same distance of the LWD (Figures 3-21 and 3-22).

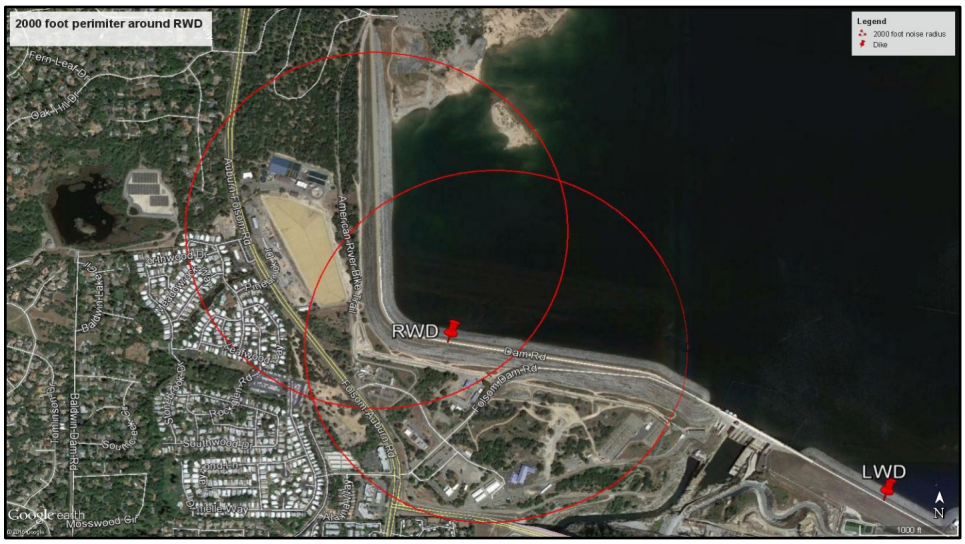

Figure 3-21. 2,000-foot noise buffer around the Right-Wing Dam. Two buffers were used in assessment due to size of the Right-Wing Dam.

Figure 3-22. 2,000-foot noise buffer around the Left-Wing Dam.

Dike 7 and MIAD. On the southeastern perimeter of the reservoir, some residences are located within 400 feet of Dike 7, MIAD West, and the MIAD East riprap stockpile (Figure 2-9 in Section 2.3). The closest residences to MIAD are located approximately 1,200 feet away off Green Valley Road (Figure 3-23).

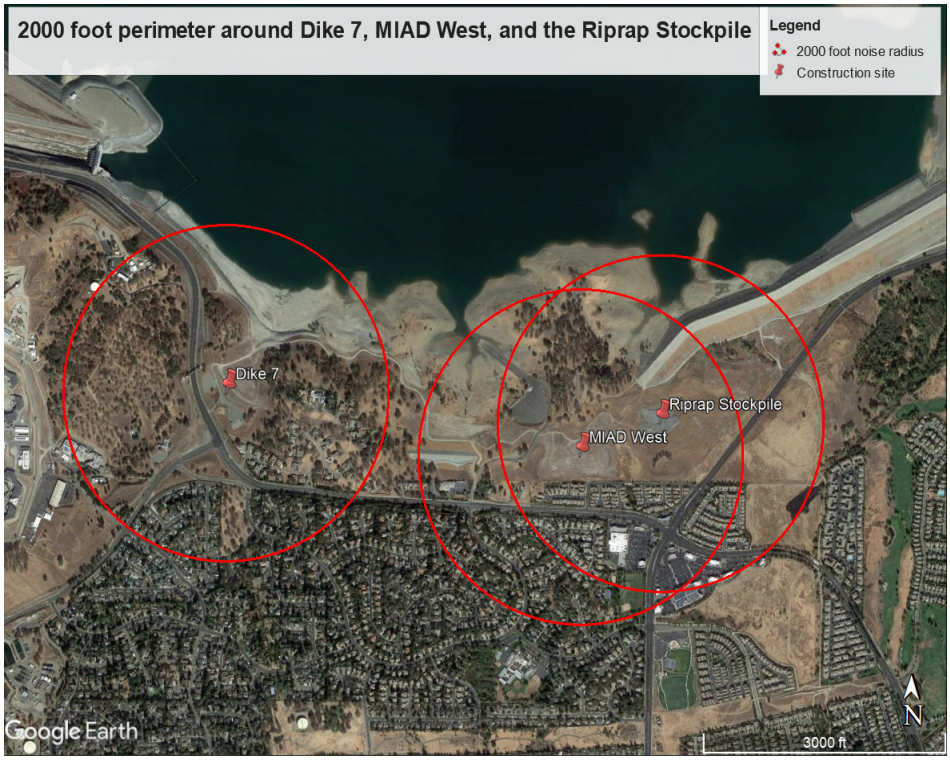

Figure 3-23. 2,000-foot noise buffers around Dike 7, the MIAD West borrow/disposal area, and the MIAD East riprap stockpile.

Construction in many of the areas mentioned above could cause a substantial, temporary increase in the ambient noise level and expose sensitive receptors to noise levels that exceed standards established by local noise ordinances.

Residences in other areas around the perimeter of Folsom Lake are located far enough away from construction areas to attenuate construction-related noise to below thresholds of significance due to trees and geographic features. Construction-related noise would not create a significant adverse effect on recreation facilities located at Granite Bay. However, campers using the campgrounds at Beal's Point would likely be disturbed by construction noise during the course of raising Dikes 5 and 6.

Vibration associated with construction activities would be short-term and due to the distance of structures and sensitive receptors, would be less than significant. Other sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Sensitive receptors would experience noise from construction vehicle motors and construction activities. Because the increase in vibration would be short-term and intermittent, the impact would be less than significant.

Temporary noise effects associated with the construction of this alternative are considered significant and unavoidable because of the close proximity of portions of the dikes to some residential areas and to FLSRA campgrounds. Implementation of mitigation measures N-1 through N-9, listed below, would reduce this effect, but not to a less than significant level. Following project completion, the project would not have any long-term noise effects. The 2017 SEIS/EIR reported the same effects determination for construction proposed in that document.

3.3.7.5 Noise: Avoidance, Minimization, and Mitigation Measures

The following mitigation measures are required to reduce noise impacts. All of the Mitigation Measures referenced (N-1, N-2, etc.) are summarized in Table 2-4 in Appendix A.

- Construction noise would be limited in accordance with timeframes and requirements in the City of Folsom, Sacramento County, and Placer County Noise Ordinance exemption for construction. If construction must occur outside of the exempted timeframe in the vicinity of sensitive receptors, the construction contractor would be required to meet the City of Folsom exterior noise thresholds. Construction noise is exempt from these standards during the periods of 7:00 a.m. to 6:00 p.m. on weekdays and 8:00 a.m. to 5:00 p.m. on weekends (N-1).

- To help minimize construction noise effects to campers utilizing the Beal's Point campgrounds, construction activities at Dike 6 would be limited to the construction noise exemption times specified by the City of Folsom Noise Ordinance (e.g. 7am to 6pm on weekdays, and 8am to 5 pm on weekends). In addition, no construction activities would be allowed at Dike 6 on weekends (Saturdays and Sundays). There could be limited exceptions to these requirements. Examples of potential exceptions include things such as emergency actions, corrective actions to ensure safety, transporting special equipment, etc. The construction contractor would first have to obtain USACE approval before performing construction work outside of the timeframes specified above (N-2). Additionally, any city or

county permits necessary for night work would be obtained and the provisions of Mitigation Measure VW-13 in Table 2-4 in Appendix A would be followed.

- Construction equipment noise would be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications), and by shrouding or shielding impact tools (N-3).

- If practicable, all equipment, haul trucks, and worker vehicles would be turned off when not in use for more than 5 minutes (N-4).

- Equipment warm up areas, water tanks, and equipment storage areas would be located as far from existing residences as is feasible (N-5).

- Written notice of impending construction work would be provided to potentially affected residences (typically those located with approximately 2,000 feet of proposed construction activities) at least 2 weeks prior to mobilization of a give project phase. These notices would identify the type, duration, and frequency of construction activities. Notification materials would also identify a mechanism to register complaints if construction noise levels are overly intrusive (N-6).

- The contractor would measure surface velocity waves caused by equipment and monitor vibration up to a threshold value established and approved in writing by the USACE. There would be no vibration exceeding 0.2 inch per second. Such measurements would only be taken near residences and occupied buildings that could be adversely affected by excessive ground vibrations (N-7).

- A 24-hour telephone hotline for noise complaints would be established by the construction contractor and notices would be conspicuously displayed at the construction site. Any complaint calls not answered at the time of the call would be returned within approximately 24 hours of their receipt, as long as the message left includes a call-back phone number (N-8).

- Public meetings would be scheduled prior to construction of a given project phase to help ensure residents that may be affected by construction noise are informed of the project schedule and its potential effects (N-9).

Although construction activities are temporary and avoidance, minimization, and mitigation measures would be implemented, impacts would remain significant and unavoidable because there would be a substantial temporary increase in ambient noise levels in the project vicinity above the levels existing without the project. Upon completion of the project, there would be no impacts to noise.

3.3.8 Water Quality and Waters of the United States

Water quality analysis covers the conventional pollutants. For this analysis, conventional pollutants analyzed are:

- pH
- Turbidity
- Total dissolved solids (TDS)
- Dissolved oxygen
- Nutrients, including total organic carbon (TOC), nitrogen, and phosphorus
- Trace elements, including arsenic, cadmium, chromium, copper, lead, nickel, and zinc

Groundwater quality was not analyzed for this report because of the lack of hydraulic connectivity between the dikes, emergency spillway, and the Folsom Lake. Previous studies (Sherer 2006) indicate that the data collected throughout the downstream foundation areas indicate that there is no connection between the lake and local groundwater levels.

The area of analysis for this section is the aquatic body of Folsom Lake, particularly surface waters within the area of the lake along the dikes, the main dam, and the emergency spillway. This section further addresses potential project impacts to jurisdictional Waters of the United States (WOUS), which include Folsom Lake and wetlands in the immediate vicinity of the proposed project's anticipated direct impact footprint.

3.3.8.1 Water Quality and Waters of the United States: Environmental Setting

Regulatory Setting

The following Federal, state, and local laws and regulations apply to the resources covered in this section. Descriptions of the laws and regulations are discussed in Chapter 5.0.

Federal

- Clean Water Act (CWA) (33 USC §1251 *et seq.*)
- National Pollutant Discharge Elimination System (33 USC §1342)

State

- California Water Code
- Local Water Quality Regulations
- Porter-Cologne Water Quality Control Act

Existing Conditions

Pursuant to the Porter-Cologne Act, the Central Valley Regional Water Quality Control Board (CVRWQCB) prepares and updates the Water Quality Control Plan for the Sacramento and San Joaquin River Basins every three years. The most recent update was completed in May 2018. The plan describes the officially designated beneficial uses for specific surface water and groundwater resources, and the enforceable water quality objectives necessary to protect those beneficial uses. The

Folsom Dam Raise project is located within the CVRWQCB's jurisdiction and is subject to the Basin Plan.

Snowmelt and precipitation from the upper American River Watershed discharges water into Folsom Lake. In general, runoff from the relatively undeveloped watershed is of high quality and rarely exceeds the State of California's water quality objectives (Reclamation Dam Safety SEIS, 2008). The following beneficial uses have been defined by the CVRWQCB for Folsom Lake: municipal and domestic water supply; irrigation; industrial power; water contact and non-contact recreation; warm and cold freshwater habitat; warm freshwater spawning habitat; and wildlife habitat, along with potential beneficial uses for industrial service supply. Water quality within Folsom Lake and Lake Natoma is generally acceptable to meet the beneficial uses currently designated for these water bodies.

Although groundwater is not a major resource in the vicinity of Folsom Lake, small amounts of groundwater are typically found in granitic fissures and cracks. Because fractured aquifer systems are typically low yielding, surface water sources are primarily used for drinking water or irrigation water sources rather than wells.

The applicable CVRWQCB water quality standards are listed in Table 3-15. The water quality values measured within Folsom Lake from 1992 to 1998 are presented in Table 3-16. All the data were collected over a six-year period from 1992 to 1998; 104 samples were taken for both pH and turbidity; 47 samples were taken for TOC; 101 samples were taken for electric conductivity (Larry Walker Associates, 1999).

Table 3-15. Central Valley Regional Water Quality Control Board Water Quality Standards.

Water Quality Parameter	Objective
Bacteria	100 MPN/100 ml
Total Dissolved Solids	100 mg/l
Dissolved Oxygen	7.0 mg/l for cold water habitat
Dissolved Oxygen	5.0 mg/l for warm water habitat
Turbidity	10 NTU
pH	6.5 to 8.5

Note: MPN is the Most Probably Number

Table 3-16. Water Quality Parameters Sampled at Folsom Lake – 1992 to 1998.

Water Quality Parameter	Minimum	Maximum	Average
pH (standard units)	5.82	8.46	7.09
Turbidity (mg/L)	1	68	1.2
DO (mg/L)	6.1	13.6	10.3
TOC (mg/L)	2	3.5	N/A
Nitrogen (mg/L)	N/A	N/A	N/A
Phosphorus (mg/L)	N/A	N/A	N/A
Electric Conductivity (µS/cm)	18.5	123	52.2

Table 3-17 presents water quality values within Folsom Reservoir from 2001 to 2005. The nitrogen, phosphorus, and TDS data were collected over a 13-month period from February 2001 to February 2002; five (5) samples were taken for each of these parameters. The TOC data were collected on June 11, 2003; six (6) samples were taken. The pH, electric conductivity, DO, and turbidity data were collected on June 28, 2005; a total of 47 samples were taken (Reclamation 2005, MWH 2003, Wallace, Roberts and Todd et. al. 2003).

Table 3-17. Water Quality Parameters Sampled at Folsom Lake – 2001 to 2005.

Water Quality Parameter	Minimum	Maximum	Average
pH (standard units)	6.6	8.23	6.94
Turbidity (NTU)	1	126.9	8.4
DO (mg/L)	4.95	7.93	6.88
TOC (mg/L)	1.5	1.8	1.6
Nitrogen (mg/L)	<0.050	0.11	0.062
Total Phosphorus (mg/L)	<0.010	<0.050	0.0212
TDS (mg/L)	39	44	41.8
Electric Conductivity (µS/cm)	32.5	61.6	46.2

Fecal coliform bacteria levels within Folsom Lake are presented in Table 3-18. The values for Granite Bay and Beal's Point represent data collected over a five-month period (May 2003 to September 2003); 19 samples were taken at each location. The values for Folsom Dam represent data collected over a 13-month period from February 2001 to February 2002; 5 samples were taken (Reclamation 2003; Wallace, *et al.* 2003).

Table 3-18. Folsom Lake Fecal Coliform Sampling – 2001 to 2003, Fecal Coliform Concentrations (MPN/100mL).

Site	Minimum	Maximum	Geometric Mean
Granite Bay	2	300	9
Beal's Point	2	900	18
Folsom Dam	2	30	12.2

Known jurisdictional WOUS within and close to the potential direct impact footprint of Alternative 2 (the proposed project) are discussed in Section 3.3.2 (Vegetation and Wildlife). Folsom Lake is a jurisdictional waterbody up to its Ordinary High Water (OHW) elevation of 466 feet NAVD88. The American River is located immediately adjacent to the south (downstream) of Folsom Dam and is a jurisdictional waterway. One small, vegetated wetland, designated as SW010 and occupying approximately 0.04 acre, is located just east of the northern end of Dike 2. A jurisdictional drainage swale, designated as SW008 and occupying approximately 0.01 acre, is located just west of the central portion of Dike 1. Two jurisdictional seasonal wetlands, designated as WM012 (approximately 0.07 acre) and wetland WM013 (approximately 0.02 acre), are situated near the central portion of Dike 5 on its west side. A remnant fragment of riparian woodland habitat, encompassing roughly 2.2 acres) is located on the south side of MIAD near its western end.

3.3.8.2 Water Quality and Waters of the United States Environmental Consequences

Methodology

Effects on water quality that could result from construction activities were qualitatively evaluated based on the construction practices and materials to be used, the location and duration of the activities, and the potential for water-quality degradation of project waterways (Table 3-19). Standard pollution prevention measures, including erosion and sediment control measures, good housekeeping, proper control of non-stormwater discharges, and hazardous spill prevention and response measures, would be implemented as part of the project design.

Table 3-19. Summary of Potential Water Quality Effects.

Threshold	Rational for Evaluating Potential Effects
Fecal Coliform Bacteria	Effects not likely since potential bacteria sources are not associated with the project
pH	Any release of concrete wash water without treatment or approved BMPs could affect pH. Increased turbidity from construction activities could also affect pH to a limited degree.
DO	Discharges with chemical or biochemical oxygen demand, could lower DO concentrations in water
Oil and Grease	Discharges of oil, grease, or similar materials from construction equipment could pollute water
Turbidity	Stormwater runoff from areas disturbed during construction could increase turbidity levels in water
Nutrients	Stormwater runoff from areas disturbed during construction and from areas revegetated at the end of construction could increase nutrient concentrations in water and also decrease DO concentrations

Basis of Significance

For this analysis, an effect pertaining to surface and ground water quality was considered significant under CEQA and NEPA if it would result in any of the following environmental effects, which are based on professional practice, Federal guidelines, and State CEQA Guidelines Appendix G (14 CCR 1500 *et seq*.):

- Violate water quality standards or waste discharge requirements, create or contribute runoff water that would provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality;
- Substantially degrade water quality to the detriment of beneficial uses;
- Have a substantial adverse effect on jurisdictional Waters of the United States through filling, dredging, or other means.

3.3.8.3 Water Quality and Waters of the United States Alternative 1: No Action Alternative

Under Alternative 1, No Action, construction would occur as described in the 2017 SEIS/EIR. By applying the measures described in the 2017 SEIS/EIR, project would not violate water quality

standards or create or contribute stormwater runoff that would provide additional sources of water pollution or substantially degrade water quality. While some degradation of water quality would be unavoidable during project construction, such degradation would be temporary, relatively minor, and would not result in long-term degradation of water quality or adverse effects to beneficial uses of Folsom Lake or the American River. The proposed project would not alter regional or local flows to the point that such flows increase erosion or sedimentation, result in on-site or off-site flooding, or exceed the capacity of nearby stormwater drainage systems. Although there would be temporary adverse impacts to jurisdictional WOUS during project construction, the project would not result in substantial adverse impacts to jurisdictional WOUS. Thus, the proposed project's anticipated impacts to water quality and jurisdictional WOUS would be less than significant.

3.3.8.4 Water Quality and Waters of the United States Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

An assessment was conducted by Reclamation on the Folsom Dam temperature shutters (2001). It was concluded that lead paint should be assumed present in all underlying primer on the structure. Some of the work on the Tainter gates would be done over water and there is the potential for lead paint to enter surface water downstream of the dam. Stop logs would be installed on the waterside of the Tainter gates to hold back the water during the period when Tainter gates and associated structures are being modified. It's possible that the stop logs will be installed before the final draft of this DSEIS/EIR is published. This measure, along with the implementation of best management practices and the mitigation measures listed below (WW-1 through WW-17), would help ensure that direct adverse effects to water quality during the construction of the Tainter gates refinement element (phase) of the proposed project would be less than significant.

The proposed project would neither increase the occurrence of impervious surfaces such as parking lots or buildings, nor change the existing land uses such that adverse hydromodification would occur. Existing drainage infrastructure (function and capacity) would not be altered from the 3.5-foot raise of the dikes, wing dams, and MIAD. Overall, the existing drainage patterns would not be substantially altered; therefore, the direct and indirect effects to local drainage would be less than significant. Implementation of an approved Stormwater Pollution Prevention Plan (SWPPP) would ensure that there is no exceedance of the capacity of stormwater drainage infrastructure, and therefore effects to the infrastructure (dikes, etc.) would be less than significant with mitigation (WW-1 and WW-9).

Project construction activities, such as drilling, excavation, grading, hauling, and fill placement may disturb or mobilize sediments, which have the potential to affect total suspended solids, pH, turbidity, and dissolved oxygen. Installation of the dike raises and the concrete floodwalls, and use of the identified staging areas, would have short-term adverse impacts on water quality from ground-disturbing activities. Exposed soil on the dikes, MIAD, LWD, and RWD could potentially erode as a result of significant stormwater runoff events, causing increased turbidity in Folsom Lake and possibly nearby wetlands. Stormwater runoff from the proposed staging areas would carry suspended sediments that could also temporarily increase turbidity in the lake and nearby wetlands. In addition, debris and inadvertent spills of fuels, oils, or concrete mix materials from construction equipment, in work areas, or in the staging areas could be a source of contamination into Folsom Lake, the American River, and nearby wetlands and drainage swales and ditches.

The construction contractor would be required to obtain an NPDES Construction General Permit from the CVRWQCB prior to initiating any project construction activities. The construction contractor would be required to prepare a SWPPP and obtain approval of this plan from the USACE and CVRWQCB. The contractor would then be required to implement the approved SWPPP prior to initiating construction activities, and to implement and maintain standard BMPs throughout the period of construction. There is also a potential for fugitive dust to enter waterways, waterbodies, and wetlands during construction due to activities like grading and movement of trucks and equipment along haul roads. However, frequent watering of haul routes, proper coverage and control of material stockpiles, and installation of BMPs would help to avoid and minimize such pollution impacts.

Raising the elevation of the dikes and MIAD would first require removal of some of existing dike and dam materials to establish a satisfactory base for new materials. This would include removing some of the existing riprap that is present on the side slopes of some of the dikes and MIAD before placing new riprap on these side slopes for the raised segments. The removal of existing riprap and its subsequent replacement could potentially extend below the OHW elevation of Folsom Lake, thereby resulting in temporary impacts to this jurisdictional WOUS. Should this occur, the end result would not adversely affect the aquatic functions and values of the lake. There would also be no appreciable loss in lake acreage (surface area) or volume. Short-term impacts to the lake would largely be confined to limited degradation of water quality adjacent to construction work.

The USACE would obtain a Clean Water Act Section 401 Water Quality Certification (Section 401 WQC) from CVRWQCB prior to construction of the portion of the project that includes raising Dikes 1, 2, and 3. The construction contractor would be required to comply with all applicable conditions and requirements set forth in the issued Section 401 WQC, including any monitoring requirements.

The proposed project would necessitate the replacement of a culvert along Old Country Road near Twin Rocks Road to facilitate the use of Old Country Road by construction vehicles. Additionally, a section of haul route at the toe of Dike 1 would be below the OHWM of Folsom Lake. However, this haul route is in the dry and would be restored to its original condition post-construction. These impacts would be less than significant with mitigation (WW-1 through WW-17).

The construction contractor would be required to protect all jurisdictional wetlands and watercourse located within or immediately adjacent to the project limits of construction. Such protection would include the installation of temporary physical barriers, such as orange mesh fencing (safety fencing), adjacent to the boundaries of the wetlands and/or watercourses.

Soil exposed during project construction could potentially erode during rain events, causing increased turbidity in Folsom Lake as well as wetlands and watercourses located within or near the project's limits of construction. Construction activities have the potential to temporarily impair water quality if disturbed and eroded soil, petroleum products, or construction-related wastes are discharged into receiving waters or onto the ground where they can be carried into receiving waters. Soil and associated contaminants that enter receiving waters through stormwater runoff and erosion can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, lower dissolved oxygen content, and introduce compounds that may be toxic to aquatic organisms.

The rock crushing operation at MIAD East would generate approximately 10,000 gallons of wastewater used to wash and clean the crushed rock. The contractor would be required to create a Wastewater Management Plan to ensure that the wastewater does not enter surface or ground water. The wastewater would be tested to determine appropriate placement which may include, spraying onto vegetation, sprayed on roads for dust abatement, or lined retention ponds.

As previously mentioned, to help maintain existing water quality conditions the construction contractor would be required to obtain a Construction General Permit (CGP), to develop a SWPPP that would become part of the CGP, to implement the SWPPP and standard BMPs prior to and during project construction activities. The contractor would be required to abide by applicable conditions/requirements set forth in the CGP and to abide by applicable technical certification conditions set forth in any Section 401 WQCs obtained by the USACE for the project. Examples of stormwater BMPs include installation and maintenance of silt fences, erosion control wattles, erosion control blankets, and, in the case of work near large waterbodies like Folsom Lake, floating turbidity curtains.

By applying the measures described in Section 3.3.8.5 below (WW-1 through WW-17), the proposed project would not violate water quality standards or create or contribute stormwater runoff that would provide additional sources of water pollution or substantially degrade water quality. While some degradation of water quality would be unavoidable during project construction, such degradation would be short-term, relatively minor, and would not result in long-term degradation of water quality or adverse effects to beneficial uses of Folsom Lake or the American River. The proposed project would not alter regional or local flows to the point that such flows increase erosion or sedimentation, result in on-site or off-site flooding, or exceed the capacity of nearby stormwater drainage systems. Although there would be temporary adverse impacts to jurisdictional WOUS during project construction, the project would not result in substantial adverse impacts to jurisdictional WOUS. Thus, the proposed project's anticipated impacts to water quality and jurisdictional WOUS would be less than significant in the long-term. The 2017 SEIS/EIR reported the same effects determination for actions proposed in that document but, that document reported that 98.3 acres of lake habitat would be impacted while the current Proposed Project would significantly reduce that impact to 57.4 acres (Table ES-3 in the Executive Summary).

3.3.8.5 Water Quality and Waters of the United States Avoidance, Minimization, and Mitigation Measures

In the 2017, WW-3 was included as a measure to reduce fugitive dust but, this is already covered in AQ-2, therefore WW-3 was removed from this document. The mitigation measures have not been renumbered in order to maintain continuity from previous documents.

The contractor would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Central Valley Regional Water Quality Control Board (CVRWQCB). As part of the permit (a Construction General Permit), the contractor would be required to prepare a SWPPP and a SPCP prior to initiating construction activities, identifying BMPs to be used for avoidance or minimization of any adverse effects during construction to surface waters.

Pollution prevention measures should be incorporated into all final design and construction plans. The pollution prevention measures would include erosion and sediment control measures, and

measures for non-stormwater discharges (i.e., construction dewatering and appropriate spill prevention and containment measures). Measures would be implemented to avoid accidental spills and sediment dispersal during barging of borrow materials. Work under NPDES jurisdiction requires the preparation of a SWPPP. The SWPPP would describe the proposed construction activities and pollution prevention measures that should be implemented to prevent discharge of pollutants. The SWPPP would also include a description of inspection and monitoring activities that must be conducted. Construction and post-construction monitoring should be conducted to ensure that all pollution prevention efforts are performed as described in the SWPPP. The SWPPP should be amended in the event modifications to the pollution prevention measures become necessary. (WW-1)

The following BMPs would be incorporated into the project:

- Appropriate erosion control measures would be incorporated into the SWPPP by the construction contractor in order to prevent sediment from entering wetlands, waterways, and waterbodies, and to minimize temporary turbidity impacts. Examples include but are not limited to: straw bales/wattles, erosion blankets, silt fencing, silt curtains, mulching, revegetation, and temporary covers. Sediment and erosion control measures would be maintained by the contractor during construction at all times. Control measures would be inspected periodically by the construction contractor, particularly during and after significant rain events. (WW-2)

- A fuels spill management plan would be developed for the project by the construction contractor and would be implemented by the contractor. (WW-4)

- Construction equipment and vehicles would be fueled and maintained in specified staging areas only, which would be designed to capture potential spills and not release them into any ditch, stream, river, or other body of water or feature that may convey water to a nearby body of water or wetland. (WW-5)

- Fuels and hazardous materials would not be stored on site, unless otherwise approved by USACE and such substances are stored in areas designed to contain leaks and spills. Any spills of hazardous material would be cleaned up immediately by the construction contractor. (WW-6)

- Construction vehicles and equipment would be inspected frequently and appropriately maintained by the construction contractor to help prevent dripping of oil, lubricants, or any other fluids. (WW-7)

- Construction activities involving removal (excavation) of material from the dikes, RWD, LWD, or MIAD as well as placement of material on these same features would be scheduled by the contractor to avoid as much of the wet season as practicable in cases where these activities may occur below the ordinary high water elevation of Folsom Lake. (WW-8)

- Construction personnel would be trained in stormwater pollution prevention practices by the construction contractor. (WW-9)

- In areas proposed for revegetation, initiation and completion of revegetation work would be done by the contractor in a timely manner to control erosion. (WW-10)

- If any portion of the project impacts wetlands, the USACE would obtain a Clean Water Act Section 401 Water Quality Certification (WQC) from CVRWQCB prior to starting such construction activities. (WW-11) The contractor would be responsible for implementing requirements set forth in these two permits. (WW-12)

- The construction contractor would be required to properly dispose of oil and similar potential pollutants, including hazardous wastes, off-site in a duly licensed facility. (WW-13)

- The construction contractor would be required to abide by the following restrictions pertaining to the use of construction staging areas that extend into Folsom Lake: (1) Use must first be approved in writing by the USACE; (2) Use is strictly prohibited when the area is inundated by standing water or the water underlying the staging area is within 6 inches of the soil surface; (3) Topographic alterations, including grading, excavation, or deposition of fill materials, are prohibited; (4) Clearing or removal of existing vegetation is prohibited; (5) Stockpiling of construction materials or wastes is prohibited; (6) Fueling of construction equipment or vehicles is prohibited; (7) Storage of fuel, hazardous wastes, or other potential pollutants is prohibited. (WW-14)

- USACE environmental staff would conduct new jurisdictional determinations (e.g. field mapping and classification of jurisdictional WOUS) prior to finalizing design plans for a particular project phase. The design plans would then be refined, if necessary, to ensure construction of the project phase would not necessitate direct impacts (e.g. placement of fill, excavation, land clearing) to any jurisdictional wetlands or watercourses. (WW-15)

- During construction of the Tainter gates refinements phase of the proposed project, the construction contractor would be required to abide by the following requirements, in accordance with 29 CFR 1926.62 Lead and 8 CCR 1532.1 Lead (WW-16):
  - Housekeeping. Lead dust on surfaces, especially in eating areas, must be controlled by HEPA vacuuming, wet cleanup, or other effective methods.
  - Hand and face washing. Workers must have washing facilities with soap and clean water.
  - Training. Workers must receive training on lead hazards and how to protect themselves.
  - Develop a written compliance program, approved by the USACE, to assure control of hazardous lead exposures.
  - Assess the amounts of lead breathed by workers. This is usually done by employee breathing-zone air sampling. Air sampling results are used to determine if clean areas for eating and clothing change, showers, full worker training, and medical monitoring with routine blood testing for lead and zinc protoporphyrin (ZPP) is necessary, as well as the type of respirator that must be worn for protection.

- To remove water via water intake pipes in Folsom Lake, the contractor would use the following drafting operating guidelines (WW-17):
  - Do not exceed pumping rate of 350 gallons per minute.
  - Terminate pumping when the tank is full.

- Encircle each pumping intake with a silt curtain or filtering barrier that does not have openings greater than 1/32 of an inch in size in to prevent entrainment of young fish (fry) and other aquatic organisms. Remove any fish present from within the encircled curtain or barrier before pumping begins. For each pumping operation, attach a functional fish screen on the intake pipe.
- The screen would be designed and used such that it can be submerged with at least one-screen-height-clearance above and below the screen.
- Retain a log on the truck containing the following information: Operator's Name, Date, Time, Pump Rate, Filling Time, Screen Cleaned (Y or N), Screen Condition, Comments.
- Include these guidelines as instructions in a logbook with serially numbered pages. The contractor would be required to report the amount of water draw from Folsom Lake monthly to the Bureau of Reclamation Central California Area Office.
- If the contractor chooses to use locations for pumping water from Folsom Lake other than those identified in this document, the contractor would coordinate with USACE environmental and cultural staff for clearance and appropriate documentation before the sites could be used.

3.3.9 Cultural Resources

The following section addresses potential impacts to cultural resources from implementation of the Proposed Project as described in this SEIS/EIR. Cultural resources are broadly defined as buildings, structures, objects, archaeological sites, archaeological and historic districts, and traditional cultural properties produced through human activity and systems of belief. Cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) are referred to as "historic properties." Archaeological sites may be associated with Native American use before the arrival of European and other explorers and settlers in the U.S. or with more recent, historic-era, use by Native Americans, Euro-Americans, and other immigrant or ethnic groups. Archaeological and historical sites, districts, and traditional cultural properties may be NRHP-eligible based on factors such as association with significant events, connection to important individuals, uniqueness of design or artistic value, and/or ability to provide important information about the past. Buildings and structures greater than 50 years old, or of exceptional significance if less than 50 years old, may also meet the criteria for inclusion in the NRHP.

USACE uses effects determinations arrived at through compliance with Title 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA), to assess effects to cultural resources under NEPA and to mitigate for adverse effects under both laws. USACE is designing and constructing the Folsom Dam Raise project; Reclamation has requirements to issue land use authorization permits, grant permission to conduct work on Reclamation land, and approve modifications to Federal facilities for project construction. In accordance with 36 CFR § 800.2(a)(2), Reclamation has designated USACE as the lead Federal agency for the project, to fulfill the collective responsibilities of both agencies under Section 106 of the NHPA.

CEQA includes provisions that specifically address the consideration of cultural resources. CEQA states that if a project would have significant impacts on important cultural resources, then alternative plans or mitigation measures must be considered. However, only significant cultural resources (termed "historical resources") need to be addressed. CEQA defines an historical resource as "a resource listed in, or determined to be eligible for listing in, the California Register of Historical

Resources [CRHR]" (California PRC Section 21084.1). In addition to the types of cultural resources that may be eligible for the NRHP (Historic Properties), historical resources under CEQA also include Tribal Cultural Resources.

Tribal Cultural Resources are either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that is either in or eligible for inclusion in the CRHR or a local historic register; or (2) a resource that the lead agency, at its discretion and supported by substantial evidence, chooses to treat as a Tribal Cultural Resource. In addition, a cultural landscape may also qualify as a Tribal Cultural Resource if it meets the criteria to be eligible for inclusion in the CRHR and is geographically defined in terms of the size and scope of the landscape. Other historical resources (as described in California PRC 21084.1), unique archaeological resources (as defined in California PRC 21083.2[g]), and non-unique archaeological resources (as described in California PRC 21083.2[h]) may also be Tribal Cultural Resources, if they meet CRHR eligibility criteria.

3.3.9.1 Cultural Resources: Environmental Setting

Existing Conditions

The existing conditions for cultural resources are determined, in part, by the cultural-historical context and geographic setting of a project area, which influences the types of resources that could be present and affected by a project. For Section 106 compliance, an area of potential effects (APE) is defined, which constitutes "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR § 800.1[d]). The 2017 SEIS/EIS describes the cultural-historical context of the Folsom Dam Raise APE and surrounding area in detail, including land use in the distant past by Native American populations and in more recent times by Euro-American explorers, trappers, miners, farmers and ranchers. The history of Folsom Dam construction and operation also is highlighted in that document. These topics were adequately addressed in the 2017 SEIS/EIR and are not repeated here.

The APE for the Folsom Dam Raise Project includes all areas where ground disturbance would occur or where modifications to manmade structures would take place. The APE for the currently Proposed Project is similar to, but slightly larger than, the APE defined in the 2017 SEIS/EIR. Since 2017, the APE has been expanded to encompass the new Dike 3; MIAD West borrow site; rock crusher at MIAD East; the access driveway at Dike 5; expanded staging areas; recreation trail improvements and utilities' relocations; and the various areas proposed for oak tree plantings.

As a result of Native American consultation conducted for the project to support the cultural resources impact assessment in the 2017 SEIS/EIR, United Auburn Indian Community (UAIC) provided their comments. UAIC comments included a statement that Tribal Cultural Resources are located with the vicinity of the project area. Specific information about the location, type or integrity of these Tribal Cultural Resources was not provided by UAIC. UAIC also requested the consideration of various mitigation measures, including tribal monitoring during project construction activities.

Although no Tribal Cultural Resources have been specifically identified in the project APE, the project vicinity is considered by UAIC to be sensitive for the presence of Tribal Cultural

Resources. Native American consultation is on-going pursuant to NHPA and CEQA requirements.

3.3.9.2 Cultural Resources: Environmental Consequences

The analysis of impacts to cultural resources is based on an evaluation of changes to known historic properties/historical resources in the APE that would result from implementation of the Proposed Project. As noted previously, the term "historic properties" refers to cultural resources that have been determined eligible for listing, or are listed in the NRHP, and "historical resources" refers to cultural resources, including Tribal Cultural Resources, that are eligible for listing, or are listed, in the CRHR . Section 106 of the NHPA requires that Federal agencies evaluate and consider the effects of their undertakings on historic properties. To determine effects to historic properties by the Proposed Project, consideration was given to changes that would alter specific characteristics of historic properties in the APE that contribute to their NRHP eligibility, and the nature of those changes (e.g., temporary or permanent, including visual impacts).

Basis of Significance

Any adverse effects on cultural resources that are listed or eligible for listing in the NRHP are considered to be significant for the purposes of CEQA and NEPA. Under Section 106 of the NHPA, effects are considered to be adverse if they alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource for the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.

Under CEQA, impacts to a historical resource, including a Tribal Cultural Resource, or unique archaeological resource, are considered to be significant if they materially impair the significance of a historical resource or a Tribal Cultural Resource.

3.3.9.3 Cultural Resources: Alternative 1: No Action Alternative

Under Alternative 1, No Action, the project would be constructed as described in the 2017 SEIS/EIR. In that instance, construction of a new Dike 3, the concrete floodwall raises of Dikes 1 and 4-7, onsite borrow and disposal at MIAD West, rock crushing operations at MIAD East, and implementation of a project mitigation plan would not occur. Impacts on cultural resources would be as described in the 2017 EIS/EIR, i.e., potentially significant because previously unknown archaeological resources or Tribal Cultural Resources could be damaged during ground-disturbing activities. The implementation of mitigation measures described in the 2017 SEIS/EIR would reduce these impacts to a less-than-significant level because USACE would consult with SHPO and Native American Tribes to resolve any adverse in compliance with Section 106 requirements, and because CVFPB would continue to consult with Native American Tribes to identify, evaluate, avoid, or mitigate damage to previously unknown Tribal Cultural Resources consistent with CEQA requirements.

3.3.9.4 Cultural Resources: Alternative 2: Constructing a New Dike 3, 3.5-foot Concrete Floodwall Raise of Dike 1 and Dikes 4-7 and MIAD, Onsite Borrow and Disposal at the MIAD West, Rock Crushing Operations at MIAD East, and a Mitigation Plan

Alternative 2 involves actions related to and directly associated with those identified in the 2017 SEIS/EIR. USACE has reviewed and consulted with the SHPO and Native American Tribes regarding these actions under Section 106 of the NHPA. More specifically, USACE has expanded the APE, conducted updated records searches covering the expanded APE, and carried out pedestrian surveys within portions of the expanded APE not previously surveyed. Between 2018 and 2020, USACE consulted under Section 106 regarding these efforts and various revised project elements with the SHPO and Native American Tribes likely to have knowledge of or concerns with historic properties in the APE. While elements of the Folsom Dam Raise Project have changed since 2017, USACE determined that the only known historic properties that could be affected by Alternative 2 are the same as those identified in the 2017 SEIS/EIR: Folsom Main Dam, LWD, RWD, Dikes 1-7 and MIAD. Dike 8 also is a historic property, but that structure was raised as described in the 2017 SEIS/EIR and is not considered in the current assessment of impacts.

The Folsom Main Dam, LWD, and RWD were determined eligible for inclusion in the NRHP in 2006; Dikes 1-8 and MIAD were determined eligible for the NHRP in 2007. These historic properties are eligible for NRHP inclusion for their role in reducing flood risk in the Sacramento metropolitan area and as components of Reclamation's Central Valley Project. As in 2017, USACE has determined that Alternative 2 would result in physical changes to the Folsom Main Dam, LWD, RWD, Dikes 1-7 and MIAD, but those changes would have no adverse effect on the ability of these properties to portray and convey their historical significance. The proposed modifications, in fact, are designed to enhance the important function of these structures for the purposes of flood control, hydropower, and irrigation. As such, no significant impacts to cultural resources would result from Alternative 2.

Pursuant to the Section 106 process described at 36 C.F.R. Part 800, USACE has continued to consult with the SHPO and Native American Tribes regarding changes to the proposed project since completion of the 2017 EIS/EIR. Most recently, through correspondence dated April 27, 2021, and pursuant to 36 C.F.R. § 800.5(b), USACE notified the SHPO of a continued finding of No Adverse Effect for the project, inclusive of the Alternative 2 activities discussed in this document. Through correspondence dated May 28, 2021, the SHPO responded with no objection to that finding. In the event of any post-review discovery of historic properties, USACE will follow the procedures at 36 C.F.R. § 800.13(b) to resolve any adverse effects, as required. Table 3-20 below catalogs the consultation efforts under Section 106 since 2017.

Under CEQA, impacts on cultural resources from Alternative 2 are considered potentially significant because previously unknown archaeological resources or Tribal Cultural Resources could be damaged during ground-disturbing activities. Implementing mitigation measure CR-1, described below and in Table 2-4 in Appendix A, would reduce these impacts to a less-than-significant level because USACE would consult with SHPO and Native American Tribes and resolve any potential effects to historic properties in compliance with Section 106 requirements, and because CVFPB would continue to consult with Native American Tribes to identify, evaluate, avoid or mitigate damage to previously unknown historical resources and Tribal Cultural Resources consistent with CEQA requirements. There would be no short-term or long-term effects as a result of this project.

3.3.9.5 Cultural Resources: Avoidance, Minimization, and Mitigation Measures

The Folsom Main Dam, LWD, RWD, Dikes 1-7, and MIAD are the only known historic properties/historical resources within the Proposed Project APE. Consultation with Native American Tribes with traditional ties to the Folsom Lake area has not resulted in the identification of historic properties of religious or cultural significance within the APE, although the Tribes consulted have indicated the area is considered culturally important and sensitive. As noted above, in consultation with the SHPO, USACE has reached a Section 106 finding of No Adverse Effect on historic properties for the project. Having received SHPO agreement with that finding, USACE has fulfilled its obligations under Section 106 of the NHPA.

Table 3-20. USACE Section 106 Consultation Efforts Since 2017*

Location	Project Element(s)	APE Revised (Yes/No)	Section 106 Finding	Date to SHPO	SHPO Response	Response Date	Date to Tribes	Tribal Response
Entire Project APE	All Project elements included in 2017 EIS/EIR	No	No Adverse Effect	1/26/2017	No Objection	3/2/2017	1/26/2017	3/2/2017 UAIC request to consult under Section 106; no specific concerns identified
Dikes 1-6	Install survey markers	Yes	No Adverse Effect	7/3/2018	No Objection	7/12/2018	7/12/2018	None
Dikes 7, 8 and MIAD	Expanded construction and stating footprint; rock crushing/riprap processing operations	Yes	No Adverse Effect	4/9/2019	No Objection	4/22/2019	4/9/2019	None
Dikes 1-6	Expanded construction and staging footprint; geotechnical investigations	Yes	No Adverse Effect	6/5/2019	No Objection	6/28/2019	6/5/2019	7/15/2019 UAIC request for GIS data; 7/25/2019 USACE provided GIS data
MIAD West and MIAD South	Borrow material geotechnical investigations	Yes	No Adverse Effect	9/16/2019	No Objection	10/11/2019	9/16/2019	None

Location	Project Element(s)	APE Revised (Yes/No)	Section 106 Finding	Date to SHPO	SHPO Response	Response Date	Date to Tribes	Tribal Response
Dike 7	Folsom Resident Office Relocation	No	No Adverse Effect	9/26/2019	No Objection	10/21/2019	9/26/2019	None
Main Dam	Concrete coring	No	No Adverse Effect	12/2/2019	No Objection	12/30/2019	N/A	N/A
Beals Point	Trail Improvements for relocated recreational use	Yes	No Adverse Effect	12/27/2019	No Objection	01/05/2020	12/23/2019	None
Entire Project APE	New Project elements included in 2021 DEIS/EIR	Yes	No Adverse Effect	04/27/2021	No Objection	05/28/2021	04/27/2021	04/30/2021 UAIC request for GIS data; 05/11/2017 USACE provided GIS data; 05/18/2021 UAIC response: no concerns

Under a Section 106 finding of No Adverse Effect, no avoidance, minimization of impacts, or mitigation is required under Federal law. However, if archeological deposits or other potential historic properties are found during implementation of the proposed project, all work would stop to determine the significance of the find and complete appropriate discovery procedures, as necessary, pursuant to 36 C.F.R. § 800.13(b) *Discoveries without prior planning*. If adverse effects to historic properties are found to result from a post-review discovery, mitigation of those effects would be determined and mitigated through the Section 106 process. (CR-1)

In accordance with CEQA, if Tribal Cultural Resources are found during project implementation, USACE and CVFPB would implement procedures to evaluate Tribal Cultural Resources, and reduce, avoid, or minimize impacts. These measures are identified in MM CR-1 (including preservation and protection in place, safeguarding resource confidentiality, treating the resource with appropriate dignity, and taking into account Tribal cultural values) and would reduce potential significant impacts on Tribal Cultural Resources to less than significant.

Pursuant to California law, California Native American Tribes that are traditionally and culturally affiliated with the geographic area in which the project is located may have expertise concerning their Tribal Cultural Resources (California PRC Section 21080.3.1). Consistent with the California Natural Resources Agency Tribal Consultation Policy, CVFPB will consult with culturally affiliated Tribes concerning Tribal Cultural Resources that may be impacted, if these types of resources are discovered prior to or during construction. Consultation with culturally affiliated Tribes shall focus on identifying measures to avoid or minimize impacts on any such resources discovered during construction. If Tribal Cultural Resources are identified in the APE prior to or during construction, CVFPB will ensure that those resources are evaluated for CRHR eligibility through application of established eligibility criteria (CCR 15064.636), in consultation with interested Native American Tribes and, if eligible, avoid or mitigate any impacts to less than significant levels in accordance with California PRC Section 21084.3 by implementing CR-1.

CHAPTER 4.0 – CUMULATIVE IMPACTS, GROWTH-INDUCING IMPACTS, AND OTHER REQUIREMENTS

CEQA requires the consideration of cumulative effects of the proposed action and closely related past, present, and foreseeable probable future projects, combined with the effects of the projects. The CEQA Guidelines define cumulative effects as "two or more individual effects, which, when considered together, compound or increase other environmental impacts" (Section 15355). This Draft SEIS/EIR was started before Army implementation of the Council on Environmental Quality's (CEQ) updated NEPA regulation 40 CFR 1500-1508 (September 14, 2020) therefore, this document adheres to prior NEPA regulations. Prior NEPA regulations defined cumulative effects as an effect on the environment that results from the incremental effects of an action when combined with other past, present, and reasonably foreseeable future actions, regardless of the agency (Federal or non-Federal) or person undertaking such other actions (40 CFR 1508.7, prior to July 2020).

4.1 Methodology

The cumulative effects analysis determines the combined effect of the proposed project and other closely related, reasonably foreseeable projects. Cumulative effects were evaluated by identifying projects in and around the Folsom Dam vicinity that could have significant, adverse, or

beneficial effects. These potential effects are compared to the potential adverse and beneficial effects of the proposed alternative to determine the type, length, and magnitude of potential cumulative effects. Those effects that cannot be avoided or reduced to less than significant are more likely to contribute to cumulative effects in the area. Mitigation of significant cumulative effects could be accomplished by rescheduling actions of proposed projects and adopting different technologies to meet compliances. Significance of cumulative effects is determined by meeting Federal and State mandates and specified criteria identified in this document for affected resources.

4.2 Geographic Scope

The geographic area that could be affected by project effects varies depending on the type of environmental resource being considered. An example is air and water resources as they extend beyond the confines of the project footprint; effects on these mediums would not necessarily be confined to the project area. When the effects of the project are considered in combination with those of other past, present, and future projects to identify cumulative effects, the other projects that are considered may also vary depending on the type of environmental effects being assessed. The following are the general geographic areas associated with the different resources addressed in the analysis:

- Air Quality: the air basins under the jurisdiction of SMAQMD, PCAPCD, and EDCAQMD as air quality leads.
- Climate Change: the air basins under the Jurisdiction of SMAQMD, PCAPCD, and EDCAQMD as air quality leads.
- Water Quality: Folsom Lake and that portion of the American River immediately adjacent to Folsom Dam
- Fisheries: Folsom Lake
- Aesthetics and Visual Resources: the FLSRA and surrounding neighborhoods in the City of Folsom and other neighborhoods
- Recreation: the FLSRA
- Traffic and Circulation: the roadways in the project region where traffic generated by multiple projects would interact with the public on a cumulative basis.
- Noise: the area under the jurisdiction of the City of Folsom and Sacramento County, Placer County, and El Dorado County.
- Cultural Resources: the APE, as described in Section 3.3.9, Cultural Resources.

4.3 Past, Present, and Reasonably Foreseeable Future Projects

The projects with the potential to contribute to cumulative effects during construction and operation of the Folsom Dam Raise project are briefly described below. Each of these projects is, or has been, required by Federal, state, and/or local agencies to avoid, minimize, and/or mitigate any significant adverse effects on environmental resources to less than significant, when possible. Those effects that cannot be reduced to less than significant are likely to have a greater cumulative effect. Sequencing and timing of construction for the projects would also affect the cumulative effects.

4.3.1 Folsom Joint Federal Project Activities

Phase 1 of Folsom JFP Auxiliary Spillway

Winter 2007 to Sept 2008 included the initiation of the spillway excavation and construction of MIAD haul road, as well as installation of filter material in the top 20 ft of the LWD and RWD. This Phase 1 work was completed under Reclamation contract as part of JFP project.

Pier Tendon Installation, Spillway Pier Wraps, and Braces and Main Concrete Dam

April 2011 through Spring 2014. These three projects address seismic concerns at the main concrete dam. These improvements are designed to help stabilize the main concrete dam against movement during a major earthquake. This portion of the JFP is covered under the 2007 FEIS/EIR.

Folsom Dam Modification Project Approach Channel

Spring 2013 to Fall 2017. The Approach Channel Project was the final construction activity of Phase IV of the JFP. The primary and permanent structures consist of the 1,100-foot-long excavated approach channel and spur dike. Additional existing sites and facilities were utilized for the length of the project include the Folsom Prison staging area, the existing Reclamation Overlook, the MIAD area, and Dike 7. These sites and facilities were connected by an internal project haul road. Criteria pollutant emissions from the Approach Channel Project and the downstream project was measured to be less than significant for ROG, CO, SO_2, and $PM_{2.5}$, and less than significant with mitigation for PM_{10}. NO_x however exceeded the GCR *de minimis* threshold and was addressed by inclusion in the State Implementation Plan, which provided compliance with the GCR of the Federal Clean Air Act for the 2012 SEIS/EIR. In 2014, a conformity analysis was completed to update emissions due to changes in the construction and schedule for years 2014 through 2017. Based on the updated mitigated emissions presented in the 2014 General Conformity assessment, a positive General Conformity determination was made for the mitigated emissions for the Folsom Dam Modification Project.

Auxiliary Spillway Excavation

Spring 2009 to Fall 2010. Major work under Phase II of the JFP included partial excavation of the western portion of the auxiliary spillway, construction of the downstream cofferdams, relocation of the Natoma Pipeline, and the creation of an access road to the stilling basin. This portion of the JFP is covered under the 2007 EIS/EIR. Construction was conducted by Reclamation and was completed prior to the start of the Control Structure construction effort.

Control Structure, Chute, and Stilling Basin

Spring 2011 to Fall 2017. Phase III of the JFP construction of the auxiliary spillway control structure was completed in August 2015. Concrete lining of the spillway chute and stilling basin would be conducted by the USACE as the final phase of the JFP. These actions were constructed from approximately summer 2013 to fall 2017. Construction of the control structure and the concrete lining of the chute and stilling basin were all covered under the USACE 2010 EA/EIR (USACE 2010).

Folsom Dam Temperature Control Device

2023 to 2025. The USACE design for the new Folsom Dam Temperature Control Device is approximately 35% complete. The design is intended to automate the process of changing the position of the control shutters. The project will involve replacing the existing system with two 13-foot-tall panels in each of 5 new vertical tracks. These new tracks and panels will be placed between the three piers comprising the existing temperature control structures on each of the three Folsom power penstocks. By expanding and reconfiguring the number of temperature control panels within the temperature control system, operators would be able to preserve the amount of cold water behind Folsom Dam and deliver the water downstream as needed to promote a suitable aquatic habitat for downstream fish and fisheries.

Dike 1 Modification Project

Winter 2014 to Spring 2015. The Dike 1 Modification was a portion of the Folsom Dam Safety Project that was approved in 2005 to address seepage exiting from downstream of Dike 1. Reclamation concluded that the seepage was likely occurring through the foundation and being collected by the downstream horizontal blanket drain and exiting onto the ground surface at the toe. Modifications to Dike 1 included constructing a downstream overlay with sand chimney filter and toe drain to prevent internal erosion under flood loading conditions.

4.3.2 Folsom Dam Water Control Manual (WCM) Update

There would be no immediate changes in normal operations with the construction of the Folsom Dam Raise Modifications Project. However, the raise would result in the ability to sustain an increased flow of 160,000 cfs for an extended period (as defined by the Emergency Spillway Release Diagram in the Water Control Manual) and could have possible inundations up to 486.34 feet (NAVD88) during very rare storm events that generate high inflow events into the reservoir. The Folsom Dam Raise Modifications Project would offer increased operational flexibility given the greater surcharge zone and ability to delay operation for the emergency gates and prolonged outflows at or below the 160,000 cfs threshold. New operation rules that would utilize the operational flexibilities provided by the dam raise would require an update to Water Control Manual (WCM). A WCM update that accounts for the new auxiliary spillway (Folsom JFP) was approved in June 2019, supported by a joint supplemental EA/EIR with separate FONSI and NOD signed 24 April 2019 and 22 January 2019, respectively. Any flood risk management operation changes required to implement the Folsom Dam Raise Project will be analyzed in detail in a subsequent WCM Update and accompanying environmental document when proposed changes to operation rules have been developed to a sufficient level of detail to be evaluated.

4.3.3 Other Projects

Dike 4, 5, and 6 Repairs, Reclamation Dam Safety

Summer 2009 to October 2010. To address seepage concerns due to static and hydrologic loadings for Dikes 4 and 6, Reclamation installed full height filters, toe drains, and overlays on the downstream face of each earthen structure. This portion of the JFP is covered under the 2007 Folsom Dam Safety and Flood Damage Reduction Project EIS/EIR (2007 EIS/EIR).

Mormon Island Auxiliary Dam Modification Project

Construction of this project began in the summer of 2010 and was completed in late 2016. Reclamation released the Final EIS/EIR for the MIAD Modification Project in December 2009.May 2010. Four action alternatives were analyzed in the MIAD Draft Supplemental EIS/EIR. The preferred MIAD action alternative of jet grouting selected in the FEIS/EIR was determined to be neither technically nor economically feasible. The preferred alternatives addressed methods to excavate and replace the MIAD foundation, place an overlay on the downstream side, and install drains and filters; the alternatives differ only in their methods of excavation. In addition, Reclamation in coordination with USFWS, completed a combination of bank credit purchase and a 15-acre preservation site purchase. The preservation site is managed by the Bureau of Land Management as part of the Pine Hill Area of Critical Environmental Concern (ACEC).

Hazel Avenue Improvement Project

Sacramento Department of Transportation completed Phase 1 of the Hazel Avenue Improvement Project. The primary portion of Phase 1 involved the widening of Hazel Avenue from four to six lanes over the American River Bridge from U.S. 50 to Curragh Downs Drive (completed in 2011). Phase 1 also included American River bike trail access, construction of bicycle and pedestrian facilities, and architectural work on the bridge. Phase 2 of the Hazel Avenue Projects includes widening Hazel Avenue from four to six lanes from Curragh Downs Drive to Madison Avenue. Phase 2 also included traffic signal modification at Curragh Downs Drive, Winding Way, La Serena Drive, the fire station at Roediger Lane, and a new signal at Phoenix Avenue. Construction of Phase 2 was completed in June 2018. Phase 3 of the Hazel Avenue Projects includes widening Hazel Avenue from four to six lanes from Sunset Avenue to Madison Avenue and is scheduled to be constructed from 2020 to 2022.

Nimbus Hatchery Fish Ladder Project

Reclamation is constructing a new fish passage at Nimbus Fish Hatchery, which is managed by the California Department of Fish and Wildlife. The project will help maintain a reliable system for collecting and spawning adult fish at the hatchery. Nimbus Dam blocks fish from reaching spawning grounds upstream. The seasonal weir will be removed following the completion of the new fish ladder. The ladder should be completed and ready for salmon access by Fall 2021.

Folsom Lake Emergency Pump

In low water years, Reclamation may implement emergency pumps to allow water to continue downstream. If the water level is below the dam gates, water would not be able to continue downstream. To remedy this issue, Reclamation may put pumps in Folsom Lake and run pipes across the wing dams and into the American River on the downstream side of the Main Dam.

4.4 Cumulative Effects

This section discusses the potential cumulative effects of the Folsom Dam Raise Modifications project when added to other past, present, and reasonably foreseeable future actions. If the project is not expected to contribute to a cumulative effect on a resource, that resource is not addressed. Resources include recreation, vegetation and wildlife, special status species, water quality, air quality, climate change, aesthetics and visual resources, traffic and circulation, noise, and cultural resources.

4.4.1 Recreation

Cumulative impacts to recreation would primarily be related to other construction projects that could occur during the same timeframe and the within the same vicinity as those considered for the Folsom Dam Raise Project. At the time of this analysis,

While these projects would have a significant temporary cumulative effect on recreation, the long-term cumulative effect would be less-than-significant. The Folsom Dam Raise Modifications project would also temporarily impact land-based activities, and because the project would temporarily affect recreation and include temporary closures of portions of the FLSRA, the project would make a considerable contribution to the significant temporary cumulative effect on recreation. Long-term cumulative impacts on recreation would be less than significant.

4.4.2 Vegetation and Wildlife

Implementation of the Folsom Dam Raise Modifications project has the potential to disturb large amounts of vegetation within the project area. These impacts, along with the historical decline of natural habitats in the general region due to urbanization, would result in significant cumulative effects to both vegetation and wildlife.

All the projects would include avoidance, minimization, and mitigation measures. However, potential adverse effects on biological resources would remain significant due to the amount of habitat affected by these projects and the time lapse before new vegetation would mature to the level of those removed. Once all the compensatory mitigation has achieved required performance/success criteria, the effects to vegetation and wildlife would be less than significant, but the cumulative temporary loss of vegetation would be a significant impact, and the project would make a considerable contribution to the impact.

4.4.3 Special Status Species

Potential cumulative impacts to various special status species (listed species) from the combination of these projects are addressed below. During preconstruction engineering and design, the USACE designs would avoid and minimize impacts to special status species, where possible, or otherwise provide compensatory mitigation.

Valley Elderberry Longhorn Beetle (VELB)

Concurrent construction of multiple projects over the next 10 to 15 years within the Sacramento area would likely cause mortality to beetles due to construction operations. Construction activities for the multiple projects would occur each year during the flight season of beetles. Since construction activities would be adjacent to known VELB locations and would require removal of elderberry shrubs (host plant for the VELB), it is likely that some mortality may occur. The exact number that may be injured or killed is unknown. No designated critical habitat would be affected with the construction of any of the projects.

Elderberry shrubs removed during the course of JFP construction were largely transplanted to areas in relatively close proximity to Folsom Dam. Transplanting of elderberry shrubs and planting other associated native plant species within the project vicinity would provide connectivity for the beetle. Connectivity is a primary cause of the beetle decline and an important element in the recovery and sustainability of the beetle. Some of the direct impacts to elderberry shrubs during JFP construction were mitigated via purchase of conservation bank credits. Although no removals are anticipated, the removal of elderberry shrubs during the construction of the Folsom Dam Raise Modifications project would also be mitigated via purchase of conservation bank credits. While these projects would both adversely affect the VELB, cumulative impacts of both projects would not jeopardize the continued existence of the VELB and cumulative impacts would be less-than-significant.

Bald Eagle

Past JFP and MIAD Modification project construction activities did not adversely affect bald eagles, and the Folsom Dam Raise Modifications project is not expected to affect bald eagles. The cumulative impact would be less than significant, and the Folsom Dam Raise Modifications project would not contribute to a significant cumulative impact.

Swainson's Hawk

Concurrent construction of multiple projects within the Folsom Lake area would not likely cause any adverse impacts to the Swainson's hawk. The Swainson's hawk is known to occur in the vicinity Folsom Dam and Reservoir, thus could be a concern for many of the projects in the area. However, there have been no recorded nesting sites above the Nimbus Dam on the American River. In addition, the staging and construction areas for this project and others in progress, or areas planned for the future, are highly disturbed and do not provide high quality habitat for this species. No critical habitat has been designated for this species, and the proposed project would not have a direct or indirect effect on the growth, survival, or reproductive success of the Swainson's hawk. Therefore, there would be no significant cumulative impact and the Folsom Dam Raise Modifications project would not contribute to a significant cumulative impact.

4.4.4 Air Quality

Local air district thresholds are set to avoid cumulative impacts, and by implementing Mitigation Measures AQ-1 through AQ-7, the project emissions would be reduced below local

thresholds. Therefore, there would be no significant cumulative effect on air quality and the project would not make a considerable contribution to a significant cumulative effect.

4.4.5 Climate Change

It is unlikely that any single project by itself would have a significant impact on the environment with respect to greenhouse gases (GHGs). However, the cumulative effect of human activities has been linked to quantifiable changes in the composition of the atmosphere, which, in turn, has been shown to be the main cause of global climate change (IPCC 2007). 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 result in a significant cumulative effect with respect to global climate change. The proposed project would implement mitigation measures CC-1 and CC-2 and would reduce emissions below thresholds set to avoid considerable contributions to the significant cumulative global climate change effects.

4.4.6 Aesthetics and Visual Resources

Cumulative impacts to aesthetics and visual resources are primarily related to other construction projects that have already occurred or could occur in the future within the vicinity of the study area and result in loss of visual quality both during and after construction. There would be some overlap with the construction of other projects as mentioned above. Concurrent construction of the Folsom Dam Raise Modifications Project would make a considerable contribution to short-term significant cumulative effects to the visual resources in the project area. Due to the temporary nature of the construction activities included in the cumulative projects, long-term cumulative effects would be less than significant.

4.4.7 Noise

There is the potential for future construction activities in the vicinity of the Folsom Dam and Reservoir to be constructed concurrently with the proposed project and other concurrent projects. This project and other local projects would result in temporarily increased levels of ambient noise in the study area. Simultaneous construction of projects would increase noise levels from the onsite construction and the transport of materials. However, the effects would be limited to the people in the immediate proximity to the construction sites and none of the local projects are in close enough proximity to the various proposed construction sites to create a significant cumulative effect.

4.4.8 Water Quality

Water quality to be affected within the actual construction area. Construction activities such as rock placement, clearing and grubbing, and slope realignment have the potential to temporarily degrade water quality through the direct release of soil and construction materials into water bodies, or the indirect release of contaminants into water bodies through runoff. Related projects, including the American River Common Features, could be under construction during the same timeframe as the Folsom Dam Raise Modifications project. If construction occurs during the same timeframe, water quality could be diminished primarily due to increased turbidity, but all projects would be required to coordinate with the CVRWQCB and overall water quality would be required to meet the Basin Plan

objectives. Temporary cumulative impacts would therefore be less than significant. These projects would also culminate in long-term beneficial impacts for flood damage reduction and dam safety.

4.4.9 Cultural Resources

Cumulative impacts to cultural resources could result from multiple construction projects in the vicinity of Folsom Lake and the surrounding area if they cause adverse effects on important cultural resources. The Folsom Lake area continues to experience growth, with new residential, commercial, and recreation-related construction, and there have been other recent Federal projects associated with Folsom Dam and its appurtenant facilities. Folsom area construction could result in significant adverse impacts to cultural resources; however, the Proposed Project, which would result in No Adverse Effects to cultural resources, would not make a considerable contribution to this significant cumulative impact.

4.5 Growth Inducing Impacts

NEPA and CEQA requires a discussion on how a project, if implemented, could induce growth. This section presents an analysis of the potential growth-inducing effects of the proposed project. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project results in any of the following:

- Substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);

- Substantial short-term employment opportunities (e.g., construction employments) that indirectly stimulates the need for additional housing and services to support the new, temporary employment demand; and/or

- Removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area.

Growth inducement may lead to environmental effects, such as increased demand for utilities and public services, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, and conversion of agricultural and open space land to urban uses. Growth within a floodplain area increases the risk to people or property from flooding.

Within the study area, growth and development are regulated by the local governments of the City of Folsom, and Sacramento, El Dorado, and Placer Counties. Consistent with California law, each of these local governments has adopted a general plan and each general plan provides an overall framework for growth and development within the jurisdiction of each local government. Local, regional, and national economic conditions also directly affect growth and development.

The Folsom Dam Raise Modifications project would not contribute directly to population or economic growth as no additional housing or businesses would be built. However, the overall Folsom Dam Safety and Flood Damage Reduction Project (including the JFP and other aspects of the Folsom Dam Raise project) would generate additional economic benefits during construction and would contribute to greater flood risk management for the Sacramento area once complete and the WCM has been modified to account for these projects. The potential for any growth-inducing effects associated with the overall JFP were analyzed under the 2007 EIS/EIR.

4.6 Unavoidable Adverse Effects

California Public Resources Code Section 21100(b)(2)(A) provides that an EIR shall include a detailed statement setting forth "any significant effects on the environment that cannot be avoided if the project is implemented." Similarly, NEPA requires discussion of "any adverse environmental effects which cannot be avoided should the proposal be implemented" (see 40 CFR 1502.16). Chapter 3 provides a detailed analysis of all potentially significant environmental impacts of the Folsom Dam Raise Modifications project, feasible mitigation measures that could reduce or avoid the project's impacts, and whether these mitigation measures would reduce these impacts to less than significant levels. Cumulative impacts are discussed above. If a specific impact cannot be reduced to less than significant level, it is considered a significant and unavoidable impact.

The Folsom Dam Raise Modifications project would have the following significant and unavoidable environmental effects (direct, indirect, and/or cumulative):

- Traffic on public roadways
- Noise
- Recreation: temporary closure of recreation facilities including bike and walking trails during construction combined with impaired access to certain open-space recreation areas.
- Temporary aesthetic impacts.

4.7 Relationship of Short-Term Uses and Long-Term Productivity

NEPA requires that an EIS include a discussion of the relationship between short-term uses of the environment and long-term productivity. Within the context of the DSEIS/EIR "short-term" refers to the construction period, while "long-term" refers to the operational life of the project and beyond.

Project construction would result in short-term construction-related effects such as interference with local traffic and recreation facilities, increased air emissions, ambient noise level, and dust, yet are not expected to alter the long-term productivity of the natural environment. Project implementation would also result in long-term effects, including long-term minor changes in visual resources.

Project implementation would contribute to long-term productivity of the environment by improving the dike system and the operation of the spillway gates that maintain flood protection to the

downstream area by reducing the overall flood risk. The long-term beneficial effects of the project would outweigh its potentially significant short-term impacts to the environment.

4.8 Irreversible and Irretrievable Commitment of Resources

NEPA requires that an EIS include a discussion of the irreversible and irretrievable commitments of resources which may be involved should the project be implemented. Similarly, the State CEQA Guidelines require a discussion of the significant irreversible environmental changes that would be caused by the project should it be implemented.

The irreversible and irretrievable commitments of resources are a permanent loss of the resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled, or those that are consumed or reduced to unrecoverable forms. Project implementation would result in the irreversible and irretrievable commitments of energy and material resources during the project construction and maintenance, including the following:

- Construction materials, including such resources as soil and rocks;
- Land and water area committed to new/expanded projects facilities; and
- Energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and O&M.

The use of these nonrenewable resources is expected to account for only a small portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy or natural resources.

As described throughout this DSEIS/EIR, without implementation of the Folsom Dam Raise Modifications project, including modifications to the WCM, flood risk would remain at its current level which would be higher than it would be if the Folsom Dam Raise Modifications project is implemented. While a precise quantification of potential adverse impacts associated with the no action alternative (e.g. not implementing the Folsom Dam Raise Modifications project) is not possible, there could be a variety of such impacts. Flooding and the resulting emergency and reconstruction efforts could expend more energy, overall, than with construction of the Folsom Dam Raise Modifications project. Depending upon the location and extent of flooding, a large volume of debris could result from a flood event; such things as cars, appliances, housing materials, and vegetation would all be generated during a flood event and would likely have to be disposed of in a landfill. After debris removal is completed, re-building could occur and new materials would be required to repair and/or construct homes, businesses, roads, and other urban infrastructure. Thus, project implementation preempts potentially substantial future consumption and is likely to result in long-term energy and materials conservation.

CHAPTER 5.0 – COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

This chapter summarizes the environmental laws and regulations that apply to the Folsom Dam Raise Modifications project and describes the status of compliance with those laws and

regulations. The project would not only comply with the Federal environmental laws and regulations, but would also comply with all state, regional, and local laws, regulations, and ordinances.

5.1 Federal Laws, Regulations, and Policies

Clean Air Act of 1972, as amended (42 U.S.C. 7401, et seq.)
Full compliance. The Federal 1970 Clean Air Act (CAA) authorized the establishment of national health-based air quality standards, and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 (1990 CAA) made major changes in deadlines for attaining National Ambient Air Quality Standards (NAAQS). As required by the Federal CAA, the USEPA has established and continues to update the NAAQS for specific criteria air pollutants: O3, CO, NO2, SO2, PM_{10}, $PM_{2.5}$, and Pb.

Pursuant to CAA Section 176(c) requirements, USEPA promulgated the General Conformity Rule which applies to the most federal actions, including the Folsom Dam Raise project. The General Conformity Rule is used to determine if Federal actions meet the requirements of the CAA and applicable SIPs by ensuring that pollutant emissions related to the action do not:

- Cause or contribute to new violations of a NAAQS.
- Increase the frequency or severity of any existing violation of a NAAQS.
- Delay timely attainment of a NAAQS or interim emission reduction.

A conformity determination under the General Conformity Rule is required if the Federal agency determines: the action would occur in a nonattainment or maintenance area; that one or more specific exemptions do not apply to the action; the action is not included in the Federal agency's "presumed to conform" list; the emissions from the proposed project are not within the approved emissions budget for an applicable facility; and the total direct and indirect emissions of a pollutant (or its precursors) are at or above the *de minimis* levels established in the General Conformity Regulations.

For the Folsom Dam Raise Modifications project, the entire construction footprint was analyzed under the CAA. For this footprint, construction emissions associated with the dike raises, the concrete floodwalls, and the Tainter gate modifications were analyzed to determine potential air quality impacts. The analysis conducted determined that the emissions associated with construction of this action would be below the *de minimis* level, based on implementing the BMPs and other air quality mitigation measures identified in Section 3.6.5.

Federal Sustainability in the Next Decade, Executive Order 13693, March 19, 2015
Full Compliance. Signed on March 15, 2015, Federal agencies are directed to promote building energy conservation, efficiency, and management, and reduce energy use by vehicle fleets. Federal agencies shall also reduce greenhouse gas emissions and increase water efficiency in industrial, landscape, agricultural and potable water uses. Specific percentage goals by year are established. The USACE is requiring lower emission producing equipment for use in construction.

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

Partial Compliance. The potential effects of the proposed project on water quality and on jurisdictional Waters of the United States have been evaluated and are discussed in Section 3.3.8. Prior to construction, the contractor would prepare a Stormwater Pollution Protection Plan (SWPPP) as part of an application for a Construction General Permit (NPDES permit). The SWPPP would help identify the sources of sediment and other pollutants and establish BMPs for stormwater and non-stormwater source control and pollutant control. The USACE would review and approve the SWPPP, then the construction contractor would submit this as part of the Construction General Permit (CGP) application to CVRWQCB. Once the CGP is issued, the contractor would be required to comply with the SWPPP and other applicable permit conditions and requirements. Once the work is completed, the construction contractor would submit a Notice of Termination in order to terminate coverage by the CGP. A CWA Section 401 Water Quality Certification would also be obtained from the CVRWQCB prior to project construction. The proposed project would be in full compliance with the Clean Water Act once the necessary permits are obtained and the construction contractor subsequently abides by the applicable requirements of these permits.

The proposed project (Alternative 2) would have temporary impacts to jurisdictional wetlands that would be less than significant with mitigation. USACE is preparing a Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) from CVRWQCB. The construction contractor would be required to comply with all applicable conditions and requirements of the WQC. The proposed project would necessitate the replacement of a culvert along Old Country Road near Twin Rocks Road to facilitate the use of Old Country Road by construction vehicles. Additionally, a section of haul route at the toe of Dike 1 would be below the OHWM of Folsom Lake. However, this haul route is in the dry and would be restored to its original condition post-construction. These impacts would be less than significant with mitigation.

The proposed project would be in full compliance with the CWA once the necessary permits are obtained from CVRWQCB and the construction contractor abides by the applicable requirements of these permits.

Endangered Species Act of 1973, as amended (16 U.S.C. 1531. et seq.)
Partial Compliance. A list of the threatened and endangered species that have the potential to occur in the Folsom area was obtained from USFWS on January 21, 2015 (see Appendix D in the 2017 SEIS/EIR). Based on the analysis contained in this document, the USACE has determined that the proposed project would adversely affect the Federally listed valley elderberry longhorn beetle (VELB). An amended Biological Opinion (BO) for the proposed project was issued by USFWS on October 13, 2016. This BO concluded that the incidental take of the VELB anticipated for the proposed project is not likely to result in jeopardy to the species. Once the USACE implements the conservation measures called for in the cited BO (which equate to the VELB mitigation measures discussed in Section 3.3.2), including, if necessary, the purchase of conservation bank credits as compensatory mitigation for any removal of elderberry shrubs, the Folsom Dam Raise Modifications project would be in full compliance with the Endangered Species Act and the BO. On September 20, 2019, USACE received a BO from USFWS concurring that the determination that moving the Folsom Residence Office may affect but is not likely to adversely affect VELB or its habitat. The use of the paved landside area of Dike 7 was temporarily used as the Folsom Project Office and required a buffer of less than 2 feet for a single elderberry shrub along the road to the site. USFWS BO also allows for the site to be used as a future office site if needed. On January 15, 2020 and February 3, 2020, USACE received a BO from USFWS concurring that the trail work for the Pioneer Express

Trail may affect but is not likely to adversely affect VELB or its habitat with implementation of conservation measures. Trail work is required to create a multi-purpose recreation trail detour while construction of the dikes is occurring. The trail work would require a buffer of less than 20 feet for three elderberry shrubs along the existing trail. USACE is currently reinitiating consultation for the construction of the Folsom Dam Raise. No elderberries are to be removed or trimmed but, hauling and access routes would require a buffer of less than 20 feet for elderberry shrubs along existing routes. USACE is currently reinitiating consultation for work described in this Draft that would be within the 100-foot buffer area and may affect but unlikely to affect VELB. Documentation for the recent consultations is included in Appendix D.

Executive Order 11988: Flood Plain Management
Full Compliance. The objective of this E.O. is to avoid, to the extent possible, any long term and short-term adverse effects associated with the occupancy and modification of the base floodplain (1% annual event), and to avoid direct and indirect support of development in the base floodplain wherever there is a practicable alternative. While the proposed project reduces flood risk to the population in the study area, it also removes an obstacle to growth for portions of the study area that are slated for redevelopment and are within the base floodplain. The Folsom Dam Raise Modifications project, in combination with other area flood risk reduction projects, protects the existing urban population of the greater Sacramento area. Modifying existing structures such as the Folsom Facility was determined to be the only practicable alternative to address the specific dam safety and flood management issues at Folsom. There is no practicable alternative that does not indirectly induce development in the flood plain by removing flood risk as an obstacle to growth, therefore the project is in compliance with the E.O.

Executive Order 11990: Protection of Wetlands
Partial Compliance. Executive Order 11990, signed May 24, 1977, directs all Federal agencies to refrain from assisting in or giving financial support to projects that encroach on publicly or privately owned wetlands. It further requires that Federal agencies support a policy to minimize the destruction, loss, or degradation of wetlands. A project that encroaches on wetlands may not be undertaken unless the agency has determined that 1) there are no practicable alternatives to such construction, 2) the project includes all practicable measures to minimize harm to wetlands that would be affected by the project, and 3) the effect would be minor. The proposed project would protect and preserve any jurisdictional wetlands located within the project's limits of construction or immediately adjacent to these limits. The mitigation measures discussed in Section 3.3.8 would be implemented to help avoid and minimize potential indirect impacts to such wetlands. USACE is working on Wetland Delineations and associated Water Quality Certification documentation for any project impacts to wetlands. Any updates to Wetland Delineations, including mitigation requirements, will be incorporated into the Final SEIS/EIR, as applicable.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.
Full Compliance. This Executive Order states that Federal agencies are responsible for conducting their programs, policies, and activities that substantially affect human health of the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons from participation in, denying persons the benefits of, or subjecting persons to discrimination under such programs, policies, and activities because of their race, color, or national origin. The proposed construction project is located on public lands and is not located near any minority or low-

income communities. The benefits of the Folsom Dam Raise Modifications project would extend to all areas of the greater Sacramento area; therefore, it would not provide disproportionate burdens, benefits, or effects to any minority or low-income populations and is in compliance with this Executive Order.

Executive Order 13112: Invasive Species
Full Compliance. Executive Order 13112, signed February 3, 1999, directs all Federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. The order established the National Invasive Species Council, which is composed of Federal agencies and departments, and the supporting Invasive Species Advisory Committee which is composed of state, local, and private entities. The council's national invasive species management plan recommends objectives and measures to implement Executive Order 13112 and to prevent the introduction and spread of invasive species (National Invasive Species Council 2008). Executive Order 13112 requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential effects, and measures to prevent or eradicate them.

Farmland Protection Policy Act (7 U.S.C. 4201, et seq.)
Full Compliance. There are no designated prime or unique farmlands within the project area; therefore, there would be no adverse effects to farmland and the project is in compliance with this Act.

Fish and Wildlife Coordination Act of 1934, as amended (16 U.S.C. 661, et seq.)
Partial Compliance. Federal agencies undertaking water resources projects are required to fully consider recommendations made by the USFWS in the provided Coordination Act Report (CAR) or Planning Aid Letter associated with the project. USFWS and CDFW have participated in evaluating the proposed project, and USFWS has prepared a final CAR which can be found in Appendix B of the 2017 SEIS/EIR. The USACE has considered the recommendations provided in the final CAR, as discussed in Appendix H of the 2017 SEIS/EIR. USACE is coordinating with USFWS to determine if the project changes reported in this Draft warrant a revision to the current CAR. Any updates to the CAR, including additional recommendations, will be incorporated into the Final SEIS/EIR, as applicable.

Migratory Bird Treaty Act of 1936, as amended (16 U.S.C. 703, et seq.)
Full Compliance. The Migratory Bird Treaty Act implements various treaties and conventions between the United States, Canada, Japan, Mexico, and Russia, providing protection for migratory birds as defined in 16 U.S.C. 715j. The proposed project is located in an ongoing construction area, which has been active since 2008. There are potential migratory bird nesting habitats scattered throughout the overall project footprint. The project is in a very urbanized area where traffic congestion and human activities are very common. Birds in these areas have adjusted to the human environment and continue to nest in areas with multiple human activities occurring. To help ensure that the project does not adversely affect migratory birds to the extent practicable, the avoidance, minimization, and mitigation measures discussed in Section 3.3.2 (those pertaining to migratory birds) would be implemented as part of the project. Should it be necessary to remove one or more active migratory bird nests, the USACE would first obtain a Special Purpose Permit from the USFWS authorizing such removal.

Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)

Full compliance. The Federal 1940 Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle… [or any golden eagle], alive or dead, or any part, nest, or egg thereof." This Act also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment. The USACE communicated with State Parks staff to determine documented locations of eagle nests in the Folsom Lake area. All nests discovered are located more than a mile away from the proposed project and thus would not be affected.

National Environmental Policy Act of 1969, as amended (42 U.S. C. 4321, et seq.)
Partial Compliance. NEPA applies to all Federal agencies and most of the activities they manage, regulate, or fund that affect the environment. This act requires full disclosure of the environmental effects, alternatives, potential mitigation, and environmental compliance procedures of proposed actions. NEPA requires the preparation of an appropriate document to ensure that Federal agencies accomplish the law's purposes. NEPA also requires coordination and cooperation with other federal agencies, state and local governments, and tribal organizations; and, opportunities for meaningful public participation in governmental planning and decision making. This draft SEIS/EIR constitutes partial compliance with NEPA. Full compliance would be achieved when the final SEIS/EIR is filed with USEPA, circulated for a final 30-day public review, and the USACE signs a Record of Decision (signed by the Commander of the USACE Sacramento District).

National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101)
Full Compliance Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) requires Federal agencies to take into account the effects of their undertakings on historic properties. Historic properties are cultural resources that are included in, or eligible for inclusion in, the NRHP). The Section 106 process, implemented through 36 C.F.R. Part 800, is a consultative process that involves identifying, evaluating, and assessing the effects of an undertaking on historic properties. Adverse effects on historic properties are resolved through measures stipulated in a formal agreement document (Memorandum of Agreement or Programmatic Agreement) prepared in consultation with the State Historic Preservation Officer (SHPO) and other Section 106 consulting parties, typically including Native American Tribes and sometimes including the Advisory Council on Historic Preservation. In accordance with 36 CFR § 800.2(a)(2), Reclamation, which also has undertakings related to the Folsom Dam Raise project, has designated USACE as the lead Federal agency, to fulfill the collective responsibilities of both agencies under Section 106 of the NHPA.

USACE initiated consultation with the SHPO and Native American Tribes regarding the APE and finding of No Adverse Effect on actions described in the 2017 SEIS/EIR in 2017 and concluded the Section 106 process after receiving no objection from the SHPO. Between 2018 and 2020, USACE continued consultation with the SHPO and Native American Tribes regarding changes to the Folsom Dam Raise Project as new or revised elements were designed. Through correspondence dated April 27, 2021, USACE continued consultation with the SHPO and Tribes regarding additional changes to the project described in this document. The SHPO responded with no objection to that finding through correspondence dated May 28, 2021. With receipt of the SHPO response, USACE remains in full compliance with this law. A record of consultation under Section 106 of the NHPA is

provided as Table 3-20 in Section 3.3.9.

Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.)
Full compliance. The inadvertent discovery of Native American human remains and associated cultural items discovered on Federal land is subject to the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001 et seq.) and the implementing regulations at 43 CFR Part 10. The Folsom Dam Raise project is located entirely on Federal land under the jurisdiction of Reclamation. As Such, Reclamation is responsible for compliance with NAGPRA and for conducting Tribal consultation under that law. In the unlikely event that human remains are discovered within the proposed project area, all activities in the vicinity of the discovery must cease and appropriate Reclamation officials immediately contacted to ensure appropriate action, treatment, and consultation occurs pursuant to NAGPRA requirements.

5.2 State of California Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act
Full compliance. The Alquist-Priolo Earthquake Fault Zoning Act (California PRC Sections 2621-2630 was passed by the California Legislature in 1972 to mitigate the hazard of surface faulting to structures. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface tract of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. The Folsom Dam Raise project does not contain any Alquist-Priolo Earthquake Fault Zones.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations
Full Compliance. As required by the California EPA Air Resources Board, Section 93105 Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations requires compliance on any work done in any portion in a geographic ultramafic rock unit, any portion of the area to be disturbed has naturally-occurring asbestos, serpentine, or ultramafic rock as determined by the owner / operator, or the Air Pollution Control Officer (APCO); or naturally-occurring asbestos, serpentine, or ultramafic rock is discovered by the owner / operator, a registered geologist, or the APCO in the area to be disturbed after the start of any construction, grading, quarrying, or surface mining operation. The Folsom Dam Raise project would be in compliance with the implementation of dust control best management practices, as defined by Section 93105 (CARB 2016).

California Clean Air Act
Partial Compliance. The California Clean Air Act was signed into law in 1988 and, for the first time, clearly spelled out in statute California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The California Clean Air Act provides the State with comprehensive framework for air quality planning regulation. Prior to passage of the Act, Federal law contained the only comprehensive planning framework.

The California Clean Air Act requires attainment of state ambient air quality standards by the earliest practicable date. For air districts in violation of the state ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide standards, attainment plans were required by July 1991. CARB is responsible for the development, implementation, and enforcement of California's motor vehicle pollution control program, GHG statewide emission estimates and goals, and development and enforcement of GHG emission reduction rules. A summary of the major California GHG regulations that would affect the project's GHG emissions are presented in Section 3.7. Section 202(a) of the California Clean Air Act requires projects to determine whether emission sources and emission levels significantly affect air quality based on Federal standards established by the USEPA and State standards set by CARB. Compliance with the California Clean Air Act for GHG emissions is expected with incorporated mitigation specified in Sections 3.3.4 and 3.3.5. As a result, full compliance with this Act is expected.

California Endangered Species Act
Partial Compliance. This Act requires the non-Federal partner to consider the potential adverse effects to State-listed species. As a joint NEPA/CEQA document, this DSEIS/EIR has considered the potential effects to State-listed species, as discussed in Section 3.3.3. There is the potential for the Folsom Dam Raise project to impact the state-listed bald eagle, Swainson's hawk, loggerhead shrike, Peregrine Falcon, and white-tailed kite, but only if nests are present at or in close proximity to the construction sites. The USACE has been coordinating with CDFW regarding potential impacts to State-listed species. Prior to construction of any site, the USACE would conduct preconstruction surveys to determine the presence of nests at or near construction sites. If active nests are present, coordination with CDFW would occur to determine any mitigation or minimization measures that would need to be implemented. The project would be in full compliance with this Act once these surveys are conducted and coordination has occurred.

California Environmental Quality Act
Partial Compliance. CEQA requires that State and local agencies identify the significant environmental impacts of their actions and avoid or mitigate those impacts when feasible. The CVFPB, as the non-Federal partner, would undertake activities to ensure compliance with the requirements of this Act. CEQA requires the full disclosure of environmental effects, potential mitigation, and environmental compliance for the proposed project. The CVFPB would certify the final SEIS/EIR and adopting findings in accordance with Section 15091 and 15093 of the State CEQA Guidelines. Certification of the final SEIS/EIR by the CVFPB would provide full compliance with CEQA.

California Fish and Game Code (Sections 3511, 4700, 5050, and 5515), Fully Protected Species
Full Compliance. Section 3511 of this code prohibits the take or possession of any birds designated as fully protected by the State. Section 4700 prohibits the same things regarding mammals designated as fully protected, as does Section 5050 (for fully protected reptiles and amphibians), and Section 5515 (for fully protected fish). No mammals, reptiles, amphibians, or fish species designated as fully protected species occur at the project site. Bald Eagle, Peregrine Falcon, and White-tailed Kite are fully protected bird species that have been documented in the general vicinity of the project site. However, no take (as defined in the California Fish and Game Code) of Fully Protected birds is proposed as part of Alternative 2.

California Fish and Game Code (Sections 3503), Protection of Bird Nests and Raptors

Full Compliance. Section 3503 of this code makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Subsection 3503.5 of this code makes it unlawful to take, possess, or destroy birds-of-prey (raptors) or to destroy the nests or eggs of such birds. The destruction of raptor eggs or nests is not proposed as part of Alternative 2 (proposed project) and measures would be taken during construction to help avoid unintentional destruction of such nests and eggs. Needless destruction of bird nests and eggs is also not proposed as part of Alternative 2. To help ensure that the project does not adversely affect migratory birds, the avoidance, minimization, and mitigation measures discussed in Section 3.6.5 (those pertaining to migratory birds) would be implemented as part of the project. Should it be necessary to remove one or more active migratory bird nests, the USACE would first obtain a Special Purpose Permit from the USFWS authorizing such removal. This approach is in keeping with California Fish and Game Code Section 3513.

California Seismic Hazards Mapping Act
Full Compliance. The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code [PRC] Sections 2690-2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils. The project area is within the Foothills Fault System, which is located in the metamorphic belt. No active faults have been mapped within the project area by the California Geological Survey or U.S. Geological Survey. The closest fault is a Quaternary (younger than 1,600,000 years) is just over 8 miles to the northwest. As a result, there would be no significant effects on the project due to seismicity and the Folsom Dam Raise Modifications project is in full compliance with this Act.

California Water Code
Partial Compliance. The Folsom Dam Raise Modifications project is located within the jurisdiction of the CVRWQCB, within the greater Sacramento Valley watershed. The preparation and adoptions of water quality control plans, or Basin Plans, and statewide plans, is the responsibility of the SWRCB according to State law and requires that Basin Plans conform to the policies set forth in the California Water Code beginning with Section 13000 and any State policy for water quality control. These plans are required by the California Water Code (Section 13240) and supported by the Federal CWA. Section 303 of the CWA requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basins Plans consist of a designation or establishment for the waters within a specific area of beneficial uses to be protected and water quality objectives to protect those uses. Adherence to Basin Plan water quality objectives protects continued beneficial uses of water bodies. Because beneficial uses, together with their corresponding water quality objectives, can be defined per Federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the State and Federal requirements for water quality control (40 CFR 131.20). The potential effects of the proposed project on water quality have been evaluated and are discussed in Section 3.3.8. Compliance with the California Water Code would be accomplished by obtaining a Construction General Permit and, if necessary, a CWA Section 401 Water Quality Certification from the CVRWQCB prior to any project construction activities.

Porter-Cologne Water Quality Control Act

Partial Compliance. The Porter-Cologne Water Quality Control Act of 1970 established the SWRCB and RWQCBs within the State of California. These groups are the primary state agencies responsible for protecting California water quality to meet present and future beneficial uses and regulate appropriative surface rights allocations. The preparation and adoption of water quality control plans, or Basin Plans, and statewide plans, is the responsibility of the SWRCB. State law requires that Basin Plans conform to the policies set forth in the California Water Code beginning with Section 13000 and any State policy for water quality control. These plans are required by the California Water Code (Section 13240) and supported by the Federal CWA. Section 303 of the CWA requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, and adherence to water quality objectives to protect those uses. The potential effects of the proposed project on water quality have been evaluated and are discussed in Section 3.3.8. This project expects to achieve full compliance with the Water Quality Control Act by achieving compliance with CVRWQCB certification mandates for Section 401 of the Federal CWA.

CHAPTER 6.0 – COORDINATION AND REVIEW OF THE DSEIS/EIR

This chapter summarizes public and agency involvement activities undertaken by the USACE, CVFPB, and SAFCA that have been conducted to date, are ongoing, and/or would be conducted for this project, and which satisfy NEPA and CEQA requirements for public participation (including scoping) and agency consultation and coordination. Additionally, Native American consultation activities are described.

6.1 Public Involvement Under NEPA and CEQA

The lead agencies have implemented a public participation program to inform and engage potentially affected agencies, stakeholders, and communities. This section describes public involvement to date and future steps to be taken with the public.

6.2 Public Involvement

6.2.1 Scoping

The Notice of Intent (NOI) was published in the Federal Register on April 1, 2020. Considering COVID-19 restrictions, no in-person public scoping meetings were held. Instead, one public scoping meeting webinar, which included a PowerPoint presentation of the project, was held for the Folsom Dam Raise Modifications project on Wednesday, April 8, 2020 from 5:00 p.m. to 6:00 p.m. The meeting was advertised in the Sacramento Bee and mail and e-mail announcements were also sent to stakeholders and other interested parties. The purpose of the meeting was to inform the public about the proposed project and to solicit input to help scope the DSEIS/EIR. A website (https://www.spk.usace.army.mil/Missions/Civil-Works/Folsom-Dam-Raise/), a one-page fact sheet, and an email address (Folsom-Dam_Raise@usace.army.mil), were developed to provide the public with information and collect comments about the project on a continuous basis.

From the April 8, 2020 public scoping meeting for this DSEIS/EIR and public meetings held for the 2017 SEIS/EIR, the main issues of concern expressed by the public included the following: (1) Several objections to achieving the 3.5-foot raise by using concrete floodwalls instead of using the earthen raise approach, due to concerns about aesthetics, fragmentation of wildlife habitat/access, and public safety; (2) Avoid impacts to oak woodlands, riparian areas, and wetland areas; (3) Continue coordination with the Shingle Springs Band of Miwok Indians as the proposed project progress (USACE, 2014).

The first two issues mentioned above were primarily considered during the process of refining the design of the proposed project. The use of concrete floodwalls to raise Dike 1, Dikes 4-7, LWD, RWD, and MIAD was selected as this was the most cost-effective design. The last issue mentioned above was addressed by continuance of coordination with the cited tribe.

6.2.2 Draft SEIS/EIR

This initial draft SEIS/EIR will be circulated for 45 days to agencies, organizations, and individuals known to have an interest in the proposed project. The public review period is scheduled to begin October 29, 2021 and end December 13, 2021. Two public webinars will be held within the 45-day public scoping period at times and dates to be announced in the same manner as the public scoping meeting: via mail, email, and on the project website. All comments received during the 45-day comment period will be considered and incorporated into the final SEIS/EIR, as appropriate. The comments received and the responses to these comments will be contained in an appendix in the final SEIS/EIR. The proposed project (Alternative 2) and the draft SEIS/EIR were coordinated with various government agencies including but not limited to Reclamation, CVFPB, USFWS, State Parks, SAFCA, SMAQMD, and CVRWQCB.

This initial draft SEIS/EIR will be subsequently revised based on consideration of public comments received during the 45-day review period. Revisions will also be made to correct any erroneous data and/or information and to help clarify various aspects of the proposed project and its potential environmental effects as necessary.

6.2.3 Final SEIS/EIR

Once all of the public comments are incorporated and revisions are complete for this Draft SEIS/EIR, a Notice of Availability (NOA) for the final SEIS/EIR would be published in the Federal Register. No sooner than 31 days following publication of the NOA, the USACE would make a decision concerning the proposed project and then complete a Record of Decision (ROD). Subsequent to this, the CVFPB would consider certification of the final Supplemental EIR (e.g. certification of the final SEIS/EIR) and approval of the proposed project (Alternative 2). Assuming the CVFPB certifies the final SEIS/EIR and approves the proposed project, it would also prepare a Statement of Overriding Considerations and then file a Notice of Determination with the Office of Planning and Research.

6.3 Native American Consultation

As part of the Section 106 process, the USACE is required to identify Native American tribes that may attach religion and cultural significance to historic properties that may be affected by the

proposed undertaking (36 CFR Part 800.3(f)(2). In accordance with 36 CFR § 800.4(a)(3) and 36 CFR § 800.4(a)(4), the USACE has sought information from the Wilton Rancheria, the Tsi-Akim Maidu of the Taylorsville Rancheria, the Shingle Springs Band of Miwok Indians, and the United Auburn Indian Community of the Auburn Rancheria regarding sites of religious and cultural significance in the APE that may be affected by the project. Through consultation with the UAIC associated with the 2017 SEIS/EIR, the tribe requested that a particular staging area not be used due to the close proximity to a known cultural resource. The USACE modified the APE to remove the staging area from the project. A detailed consultation log describing those activities is included in Appendix G of the 2017 SEIS/EIR.

The provisions of AB 52 only apply to projects that have a NOP filed on or after July 1, 2015, and therefore the Bill's requirements are not applicable to the proposed project (the NOP was filed February 17, 2014 SCH# 2006022091). Although AB 52 requirements were not in place at the time of the NOP, Tribal coordination noted above and documented in Appendix G of the 2017 SEIS/EIR and Table 3-20 in Section 3.3.9, occurred and is substantially consistent with the intent of AB 52 for this project.

6.4 Consultation with Other Federal, State, and Local Agencies

Copies of the draft and final SEIS/EIR were provided to the following agencies. Direct coordination also occurred with several of these agencies regarding the proposed project.

U.S. Government Agencies

- Council on Environmental Quality
- Federal Emergency Management Agency
- U.S. Bureau of Reclamation
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- Western Area Power Administration

State of California Agencies

- Assembly Committee on Water, Parks, and Wildlife
- California Air Resources Board
- California Department of Conservation
- California Department of Corrections and Rehabilitation
- California Department of Fish and Wildlife
- California Department of Parks and Recreation
- California Department of Water Resources
- Central Valley Flood Protection Board
- Central Valley Regional Water Quality Control Board
- Governor's Office of Emergency Services
- Native American Heritage Commission
- Senate Committee on Natural Resources
- State Clearinghouse

- State Lands Commission
- California Office of Historic Preservation
- State Water Resources Control Board

Regional, County, and City Agencies

- City of Folsom
- City of Roseville
- El Dorado County
- Placer County
- Sacramento County
- Placer County Flood Control and Water Conservation District
- Sacramento Area Flood Control Agency
- Sacramento Metropolitan Air Quality Management District
- El Dorado County Air Quality Management District
- Placer County Air Pollution Control District

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