FINAL
ENVIRONMENTAL ASSESSMENT/ ENVIRONMENTAL IMPACT REPORT

Folsom Dam Safety and Flood Damage Reduction
Prison Staging Area and Stilling Basin Drain

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US Army Corps of Engineers

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

SAFCA
Sacramento Area Flood Control Agency

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ACRONYMS & ABBREVIATIONS

APE	area of potential effects
BMPs	best management practices
CARB	California Air Resources Board
CAA	Clean Air Act
CCAA	California Clean Air Act
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CH_4	methane
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Corps	U.S. Army Corps of Engineers
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibels
dBA	“A-weighted” decibel
EA	Environmental Assessment
EA/EIR	Environmental Assessment/Environmental Impact Report
EA/IS	Environmental Assessment/Initial Study
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
°F	degrees Fahrenheit
FEIS/EIR	Final Environmental Impact Statement/Environmental Impact Report
Folsom Facility	Folsom Dam and its associated facilities
FONSI	Finding of No Significant Impact
GCR	General Conformity Rule
GHG	greenhouse gas
HFC	hydrofluorocarbons
HOV lanes	bus/carpool lanes
HTRW	hazardous, toxic, and radiological wastes
JFP	Joint Federal Project
L_{50}	noise level exceeded more than 30 minutes per hour
LOS	level of service
µg/m3	micrograms per cubic meter
MIAD	Mormon Island Auxiliary Dam
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide

NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OPR	Governor's Office of Planning and Research
Pb	lead
PFC	perfluorocarbons
PM	particulate matter
$PM_{2.5}$	fine particulate matter
PM_{10}	inhalable particulate matter
Reclamation	U.S. Bureau of Reclamation
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Protection Agency
SF_6	sulfur hexafluoride
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
USFWS	U.S. Fish and Wildlife Service
WRDA	Water Resources Development Act

1.0 INTRODUCTION

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps) and the State of California Central Valley Flood Protection Board (CVFPB) propose to implement design refinements to the project, as analyzed in the Folsom Dam Safety and Flood Damage Reduction, Final Environmental Impact Statement/Environmental Impact Report (2007 FEIS/EIR), issued by the U.S. Bureau of Reclamation (Reclamation) in 2007 (Reclamation 2007). These design refinements include (1) using Folsom State Prison land for staging and operating a concrete batch plant, (2) installing a temporary traffic signal on Folsom Lake Crossing, (3) widening an existing dirt access road, and (4) constructing a drain at the stilling basin. Design and construction details of these design refinements are included in Section 2.2.

1.2 Background and Need

The Folsom Dam Safety/Flood Damage Reduction Project (Folsom JFP) is a cooperative effort among the Corps, Reclamation, CVFPB, and the Sacramento Area Flood Protection Agency (SAFCA). The Folsom JFP is designed to improve the dam safety, security, and flood damage reduction features at Folsom Dam and associated facilities (Folsom facility), including construction of a gated auxiliary spillway southeast of the main dam. Operation of this spillway would increase water discharge capability from the reservoir and help to provide a 200-year level of flood protection to the Sacramento area. The potential effects of the Folsom JFP on environmental and cultural resources were evaluated in the 2007 FEIS/EIR. The Corps was a cooperating agency in the development of the 2007 FEIS/EIR, and a joint Record of Decision was signed on May 3, 2007.

The evaluation in the 2007 FEIS/EIR was based on technical studies and the level of project design available at the time. Subsequent construction and technical studies indicated the need for design refinements to the gated auxiliary spillway, including construction of the control structure, and concrete lining of the spillway chute and stilling basin. Since these refinements were not included in the 2007 FEIS/EIR, the Corps prepared the 2010 Folsom Dam Safety and Flood Damage Reduction, Control Structure, Chute, and Stilling Basin Work, Supplemental Environmental Assessment/ Environmental Impact Report (2010 EA/EIR) to evaluate their effects. The 2010 EA/EIR also evaluated the air quality, traffic, and noise effects of a concrete batch plant located at either the Folsom Overlook and inside the spillway chute.

The Corps has recently determined that an additional area is needed for staging during concurrent construction of some of the features of the Folsom JFP. The Corps now proposes to use 10 acres of Folsom State Prison land as a staging area with a concrete plant. Although most of the 10 acres is Folsom State Prison land, a small area near the driveway is actually Federal land owned by Reclamation. For this EA/EIR, the entire 10-acre area is referred to as “Folsom State Prison land” since the prison currently has an easement to use Reclamation’s land. This area was previously used as a staging area during construction of the Folsom Bridge and thus is highly disturbed. Activities associated with using the prison land involve: (1) installing a temporary traffic signal on Folsom Lake Crossing to ensure traffic safety; (2) widening an existing direct

access road to allow for larger construction vehicles; and (3) realigning the Folsom State Prison fence around the edge of the staging area. In addition, the design of the stilling basin needs to include a drain to allow collected water in the basin to flow back into the American River.

Prior to implementation, the effects of these new design refinements must be evaluated to determine whether they would have any significant environmental or cultural effects that could not be avoided or mitigated to less than significance. Without a larger staging area, concurrent construction of these Folsom JFP features would not be possible because of the lack of space to park and/or store all the equipment, materials, and supplies needed by the contractor. Even with the 10-acre staging area, the traffic signal and wider access road would be needed to ensure traffic safety and accommodate larger trucks at the Folsom Dam Crossing intersection. Without these design refinements, completion of construction would be delayed beyond 2017 and the dam safety and flood damage reduction improvements to the Sacramento area would not be achieved in a timely manner. As a result, the residents and development would continue to be at risk from flooding and flood damages. In addition, without a drain, the collected water in the stilling basin could degrade over time, leading to obnoxious smells or mosquito breeding areas.

1.3 Project Area Location

The Folsom Dam and Reservoir are located on the American River near the City of Folsom about 20 miles northeast of the city of Sacramento (Plate 1). The new auxiliary spillway is being constructed on the left abutment of the main dam, immediately downstream of the existing left wing dam. The auxiliary spillway consists of the following features:

- A 1,000-foot-long approach channel into Folsom Reservoir.
- A spur dike to direct water into the approach channel.
- A gated control structure to control water flow.
- A 3,000-foot-long spillway chute and stilling basin.

The study area for the Folsom JFP included Folsom Dam, associated facilities, and surrounding area. This included parts of Placer, Sacramento, and El Dorado Counties. Project features evaluated in the 2007 FEIS/EIR consisted of the auxiliary spillway, staging areas, disposal sites, and access and haul roads. The “project area” for this current EA/EIR includes the land surrounding the Folsom State Prison, its intersection with Folsom Lake Crossing Road, and the stilling basin at the downstream end of the auxiliary spillway (Plate 2).

1.4 Folsom JFP Authority

Construction of the auxiliary spillway was authorized by Section 101(a)(6)(A) of the Water Resources Development Act (WRDA) of 1999 (1113 Stat. 274) and modified by Section 128 of the Energy and Water Development and Appropriations Act of 2006 (119 Stat. 2259). Specifically, Section 128 of the 2006 Act authorizes the Secretary of the Army and the Secretary of the Interior to collaborate on developing alternatives to provide flood damage reduction improvements and dam safety measures at Folsom Dam, including an auxiliary spillway. Formal

authorization for the Folsom JFP was included in Section 3029(b) of WRDA 2007, authorizing the Corps and Reclamation to construct the auxiliary spillway generally in accordance with Corps' Post Authorization Change Report, American River Watershed Project (Folsom Dam Modifications and Folsom Dam Raise).

1.5 Purpose of the EA/EIR

This EA/EIR (1) describes the existing environmental and cultural resources in the project area; (2) evaluates the effects and significance of the proposed refinements on these resources; and (3) proposes measures to avoid, minimize, or mitigate any adverse effects to less than significance. This EA/EIR has been prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This EA/EIR is intended to supplement the 2007 FEIS/EIR.

Based on the results of the EA/EIR, the District Engineer, Commander of the Sacramento District, will decide whether or not the proposed action qualifies for a Finding of No Significant Impact (FONSI) under NEPA or whether a supplemental EIS must be prepared. In addition, CVFPB will consider certifying the EIR and adopting its findings, adopting the mitigation and monitoring plan, and approving the design refinements to the project.

2.0 ALTERNATIVES

2.1 Alternatives Not Considered Further

The project area is situated in a narrow corridor between the Folsom Reservoir, Folsom State Prison, and Folsom area neighborhoods, schools, and other residential features. Rather than using Folsom State Prison land as a staging area, trucking in concrete and additional materials from outside sources was considered as an alternative. However, trucking in concrete and addition materials was determined not to be feasible because of the greater adverse impacts of truck operation on air quality, traffic, and noise resources as compared to using a larger staging area.

Rather than a gravity drain, an active pump system was considered to remove stagnant water from the stilling basin. If such a pump system was installed, the collected water would need to be pumped up to the top of the stilling basin, and treated before being discharged into the receiving waters in the American River. This alternative was determined not to be feasible because the equipment, labor, and supporting infrastructure to pump the stilling basin dry, treat the water, and obtain necessary permits would be more time consuming and costly to operate and maintain than a gravity drain.

2.2 Alternative 1 - No Action

Under the no action alternative, the Corps and the CVFPB would not implement the design refinements proposed in this EA/EIR. The larger staging area at the Folsom State Prison would not be available for ongoing and future construction, and the design of the stilling basin would not include a drain to remove collected water. Without this larger staging area, concurrent

construction of these Folsom JFP features would not be possible because of the lack of space to park and/or store all the equipment, materials, and supplies needed by the contractors. Even with the 10-acre staging area, the traffic signal and wider access road would be needed to ensure traffic safety and accommodate larger trucks at the Folsom Dam Crossing intersection. Without these design refinements, completion of construction of the Folsom JFP would be delayed beyond 2017, and the dam safety and flood damage reduction improvements to the Sacramento area would not be achieved in a timely manner. As a result, the residents, development, and infrastructure would continue to be at risk from flooding and flood damages during large storm events. In addition, without a drain, the collected water in the stilling basin could degrade over time, leading to obnoxious smells or mosquito breeding areas.

2.3 Alternative 2 – Implement Design Refinements (Preferred Action)

This section describes the proposed design refinements to the project described in the 2007 FEIS/EIR. Other construction features described in the 2007 FEIS/EIR would remain the same. Photographs of existing site conditions are provided in Plate 3.

2.3.2 Use Folsom State Prison Land

The 10-acre staging area to be leased from the Folsom State Prison is the closest available area large enough for the concrete batch plant, as well as staging equipment and materials, needed for construction of some of the Folsom JFP features. The 10-acre area would be used for administrative office space, worker parking, material storage, stock piling, construction vehicle storage and maintenance, aggregate storage, and concrete batching. A conveyor system would be installed to transport materials from the staging area across Folsom Lake Crossing into the chute and stilling basin. Effects of the installation and operation of the concrete batch plant at the Folsom Overlook and inside the spillway chute area were analyzed in the 2010 EA/EIR.

Site preparation of the staging area would first involve minor clearing and grubbing of ruderal non-native herbaceous vegetation. No woody vegetation would be removed. A 3,000-foot-long cyclone fence, with security lighting, would then be erected around the 10-acre staging area and access corridor. A small powered auger would be used to drill holes for the posts. After the holes have been excavated, the fence posts would be placed and set in concrete, and small machinery would be used to place and tension the chain link fabric. The fence would be meet Folsom State Prison security requirements. An existing 300-foot-long section of cyclone fence near the Folsom Lake Crossing intersection would be removed after the new fence has been installed, ensuring continuous closure of the security fence (Figure 1). Installation of the new fence is estimated to take approximately 3 weeks.

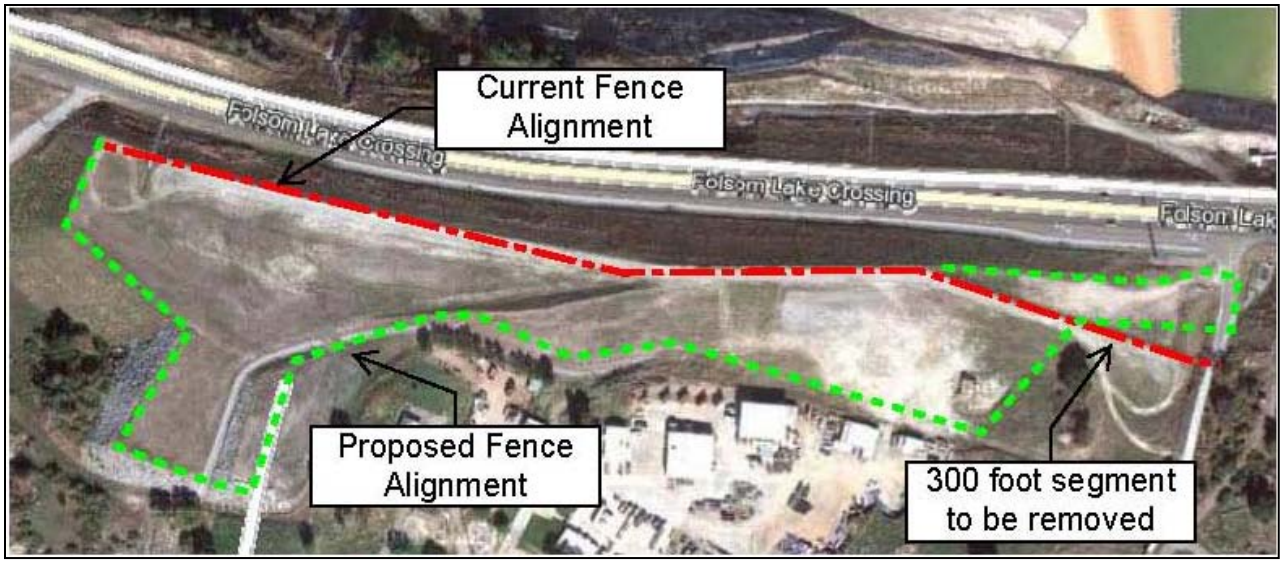

Figure 1. Folsom State Prison Fence Alignment.

The prison driveway leading into the 10-acre staging area would be widened by approximately 12 feet to accommodate the turning radius of construction vehicles (Figure 2). Small earth-moving equipment would be used to strip the top few inches of the surface and remove all organic material. Then the surface soil would be graded, scarified, and compacted. Aggregate base material would be spread over the driveway and compacted to 100 percent density. Finally, asphalt would be spread over the aggregate base and compacted with a roller compactor. Completion of the driveway work is estimated to take approximately 2 weeks.

Figure 2. Folsom State Prison Entrance.

The Folsom State Prison staging area would continue to be used until the completion of the Folsom JFP in the fall of 2017. Once the work is completed, the cyclone fence would be returned to its original alignment. The staging area would be restored to pre-project conditions, and all disturbed earthen areas would be reseeded with native grasses.

2.3.3 Install Temporary Traffic Signal

In order to allow for the safe passage of construction vehicles from the staging area to the chute and stilling basin, a temporary traffic signal would be installed at the existing intersection of the Folsom State Prison access road and Folsom Lake Crossing. The traffic signal work would involve installation of signal equipment, poles, bases, wires, and miscellaneous materials. The signal would be designed with a pedestrian push button to ensure that bicyclists and other recreationists can safely cross the new intersection. The temporary traffic signal would connect to an existing nearby electrical power source at the prison. The power for the temporary signal would come from the prison via overhead power poles.

A minor restriping of Folsom Lake Crossing would also be needed to create the necessary dedicated turning lanes and movements needed for construction vehicles. The intersection would be designed similarly to the main entrance of the Folsom JFP at Folsom Lake Crossing and Folsom Dam Road (Figure 3). The temporary traffic signal work would begin in early 2013 and take approximately 4 weeks to complete.

Figure 3. Intersection of Folsom Lake Crossing and Folsom Dam Road.

The temporary traffic signal would continue to be used until the completion of the Folsom JFP in the fall of 2017. The contractor would maintain the traffic signal in cooperation with the City of Folsom. Once the Folsom JFP is completed, the traffic signal would be removed, and the intersection would be returned to pre-project conditions. Any damage to residential streets and bike lane from construction activities would be repaired.

2.3.4 Widen Dirt Access Road

The existing dirt access road across from the entrance to the Folsom State Prison would be widened by approximately 25 feet in order to accommodate larger construction vehicles. The surface of the dirt access road would be graded and scarified using a grader and scraper. Approximately 32,000 cubic yards (cy) of rock and dirt fill material would be transported from MIAD to widen the road. Aggregate base material would be compacted to 100 percent density with a roller compactor. Widening would begin at the far end of the dirt access road and end at the Folsom Lake Crossing. The existing gates would be removed and replaced with a new gate system designed for the new road width.

Truck traffic would be limited to internal haul routes and not affect local streets. An existing storm drain pipe under the proposed haul road would be replaced with Class 5 reinforced concrete pipe to accommodate the added fill of the access road. Construction of the dirt access road is estimated to take approximately 4 weeks. The widened dirt access road would continue to be used until the completion of the Folsom JFP in the fall of 2017. Once the work is completed, the dirt access road would be removed.

Figure 4. Access Road Entrance.

2.3.5 Construct Stilling Basin Drain

The stilling basin is located at the lowest elevation in the auxiliary spillway. Constructing a drain would allow flood releases, stormwater runoff, and/or groundwater seepage collected in the stilling basin to flow back into the American River. After a flood release, a depth of 15 feet of water (equivalent to approximately 610,000 cubic feet) would remain in the stilling basin. The new drain would allow the remaining water to drain freely through a pipe to the river in less than 1 day. Stormwater runoff into the stilling basin could also drain into the river. Backflow from the river would occur infrequently, and its susceptibility to pick up sediments would be very low. Construction of the drain would begin in the summer of 2017 and be completed in October 2017. Two stilling basin drain designs are proposed (Plates 4 and 5).

Bored Pipe Drainage Design

The stilling basin and surrounding area would drain from the northern end of the stilling basin behind the right stilling basin wall. Six pipe segments, three 8-inch and three 6-inch, would be embedded in the lower portion of the stilling basin wall to drain water inside the basin out to the surrounding area.

A 224-foot-long drain would be constructed to collect water from the pipe segments and release it into the American River. The first 50 feet of the drain would be an open channel cut from the northwest corner of the stilling basin. Then a 15-inch diameter pipe would be bored through the rock for approximately 144 feet towards the American River. A 20-foot section of the pipe would over lap the open cut channel and be backfilled with mass concrete to allow maintenance vehicle access through the life of the project. The remaining 55 feet of the drain would be an open cut channel linking the end of the pipe with the outfall to the river. The vertical trench depth would vary from zero to about 5 feet. A flap gate would be placed at the end of the pipe.

Approximately 91 cubic yards of material would be excavated. Excavated material would be taken to either the MIAD disposal site or used as rockfill on or near the Folsom Overlook.

Open Cut Channel Drainage Design

Similar to the bored pipe drain, the stilling basin and surrounding area would drain from the northern end of the stilling basin behind the right stilling basin wall. Six pipe segments, three 8-inch and three 6-inch, would be embedded in the lower portion of the stilling basin wall to drain water inside the basin out to the surrounding area.

A 222-foot-long open cut drain would be constructed to collect water from the pipe segments and release it into the American River. From the northwest corner of the stilling basin, a 15-inch diameter pipe would be placed in an open cut trench for approximately 20 feet and backfilled with mass concrete to allow maintenance vehicle access. A flap gate would be placed at

the end of the pipe. The open drain would cut through rock to the outfall at the river. The vertical trench depth would vary from zero to about 12 feet.

Approximately 425 cubic yards of material would be excavated. Excavated material would be taken to either the MIAD disposal site or used as rockfill on or near the Folsom Overlook.

3.0 AFFECTED RESOURCES AND ENVIRONMENTAL EFFECTS

3.1 Introduction

This section describes both the environmental resources of the project area and the potential effects of the alternatives on those resources. In this document, "affected resources" refers to the present-day, existing environmental conditions of the project area. Both beneficial and adverse effects are considered, including direct effects during construction and indirect effects resulting from the project implementation. Where necessary, each section contains a discussion of the methods used to analyze effects. In addition, the basis of significance for each resource is identified to evaluate the significance of any adverse effects. When necessary, measures are proposed to avoid, minimize, or reduce any adverse effects on that resource to less than significant.

3.2 Resources Not Considered in Detail

Initial evaluation of the effects of the alternatives indicated there would be little to no direct, indirect, or cumulative effects on several resources. These resources are discussed in Sections 3.2.1 through 3.2.8 to add to the overall understanding of the environmental setting.

3.2.1 Geology and Seismicity

The project area is located between the Central Sierra Nevada and the Central Valley geomorphic provinces. The Sierra Nevada geomorphic region is characterized by a north-northwest trending mountain belt with extensive foothills on the western slope. Folsom Reservoir is situated within this foothill setting, a geomorphic region primarily consisting of rolling hills and upland plateaus between major river canyons.

Geological mapping by Wagner, Jennings, Bedrossian, and Bortugno (1981) indentifies two major rock divisions within the project area: granodiorite intrusive rocks, and metamorphic rocks. Granodiorite intrusive rocks are similar to granite. Folsom Dam and the western side of Folsom Reservoir mainly consist of Mesozoic dioritic rocks. They are composed of a coarse grained crystalline matrix with slightly more iron and magnesium-bearing minerals and less quartz than granite.

Metamorphic rock units are part of the Jurassic-Age Amador Group, referred to as the Copper Hills volcanic. Copper Hill volcanic (Jch) rocks occur in the project area near Folsom Point and at MIAD disposal area. These rocks are described as metamorphosed basaltic breccia and ash (mafic pyroclastic) rocks, pillow lava, and minor bodies of granitic composition (felsic porphyrite). The origin of most of these rocks is at or near an oceanic island volcanic arc that was

later added (accreted) to the continent and deformed. These rocks are generally resistant to erosion and form thin, clayey soil. Naturally occurring asbestos may be found in this formation.

The MIAD disposal area is located in the Copper Hills Volcanic unit. While disposal of material is occurring at MIAD, there are no earth moving activities in the natural soil at MIAD as a part of this project. Haul trucks would deliver excavated material from the approach channel to MIAD for disposal, therefore, there is the potential for NOA to occur throughout the construction area due to soil and dust migration associated with vehicle traffic. A tire washing station has been installed at the exits to remove dirt and mud from tires to reduce track out of dirt to public roads. Implementation of this measure would ensure that NOA does not migrate beyond the reaches of the project area, and thus, there would be no effects associated with NOA.

Near MIAD in the southeast corner of Folsom Reservoir are the Laguna and Merhten Formations. The Merhten Formation is a complex unit of volcanic sediments mixed with volcanic mudflows (or lahars). It contains volcanic conglomerate, sandstone, and siltstone, all derived from andesitic sources. Portions of the Merhten are gravels deposited by ancestral streams. The Laguna Formation, deposited on the Merhten Formation is a sequence of gravel, sand, and silt derived from granitic sources. It was deposited as debris flows. Because of their size and nature, the design refinements would have no effect on geological condition in the area.

The project area is within the Foothills Fault system, which is located in the metamorphic belt. This system consists of northwest trending vertical faults and is divided into two zones, the western Melones Fault zone and the western Bear Mountains Fault zone. The west trace of the Bear Mountains Fault zone transects the upper reaches of the North Fork arm near Manhattan Bar Road, and crosses the South Fork arm in the region of New York Creek.

The largest historic earthquake in the Sierra Nevada foothills was the 1975 Oroville event of magnitude (M) 5.7, located approximately 60 miles to the north. However, distant faults capable of major earthquakes (M>7) include the faults of the San Andreas system approximately 60 miles or more to the west and faults of the Sierra Nevada frontal fault system 40 miles to the east of Folsom.

Potential seismic hazards from a nearby moderate to major earthquake can be classified as primary and secondary. The primary effect is fault ground rupture. However, no active faults have been mapped in the project area by the California Geological Survey or U.S. Geological Survey (Jennings, 1994). In addition, the project area is not located in the one of the Alquist-Priolo Earthquake Fault Zones (California Geological Survey, 2007). As a result, the risk of fault ground rupture is negligible. The stilling basin drain would be designed to meet or exceed applicable design standards for secondary hazards such as ground shaking, liquefaction, subsidence, and seiches. As a result, the design refinements would have no effect on seismic conditions in the area.

3.2.2 Topography and Soil Types

The project area is located in the American River watershed, which ranges in elevation from 10 feet above mean sea level at the confluence with the Sacramento River to 10,000 feet in the Sierra Nevada Mountains. Folsom Reservoir is in the foothills of the Sierra Nevada

Mountains, set within the valley created by the confluence of the North and South Forks of the American River. The construction of the proposed action would take place within the boundaries of the area analyzed in the 2007 FEIS/EIR. Due to their size and nature, the design refinements would have no effects on the major topographic features in the area.

Review of the soil data provided through the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Soil Survey of Sacramento County, California indicates that near-surface soils in the project area identified as Andregg coarse sandy loam; Andregg coarse sandy loam, sandy loam; Andregg-Urban land complex; and Xerolls on top of weathered bedrock. Andregg soil is moderately deep and well-drained with moderately rapid permeability rate. Runoff is slow or medium and the hazard of water erosion is slight to moderate. Andregg soils have a low shrink-swell potential of the surface layer. Urban land consists of areas covered by impervious surfaces or structures, such as roads, driveways, sidewalks, buildings, and parking lots. The soil material under the impervious surfaces is similar to that of the Andregg soil, although it may have been truncated or otherwise altered. Xerolls are well-drained soils on terrace escarpments and steep hill slopes near the Folsom Dam spillway. Permeability is moderately rapid to moderately slow in the Xerolls. Runoff is rapid or very rapid and the hazard of water erosion is severe.

Localized areas of the project area would be disturbed during construction due to excavation associated with final grade excavation and foundation preparation at the dirt access road and stilling basin drain. All suitable material from excavation would be reused in the project area to the extent feasible. All disposal material would be temporarily stockpiled at the staging area(s) and then disposed of at a MIAD. As a result, the design refinements would have no effect on the overall soil conditions in and near the project area.

3.2.3 Land Use and Prime/Unique Farmland

The land surrounding Folsom Dam and Reservoir is primarily Federally-owned and designated for recreation and flood control use. The major land use in the project area is Reclamation's Central California Area Office, the Folsom Dam industrial complex, Folsom State Prison, and a utility corridor.

Folsom State Prison is a multi-mission institution consisting of about 1,200 acres on Prison Road. California's second oldest prison, Folsom State Prison, is located at 300 Prison Road on a 40-acre parcel adjacent to and south of Folsom Dam. Both prisons collectively house nearly 8,000 inmates, the Regional Corporation Yard for Inmate Day Labor, and the main headquarters for the Prison Industry Authority. The prison property includes access to the Sacramento-Folsom firing range, office and storage facilities, and the Green Valley Conservation Camp.

Since the project area lies entirely within the city of Folsom, the Sacramento County planning agencies do not have jurisdiction. The land located west of the project area is within the city of Folsom and is zoned as an Open Space Conservation District. This zoning district was established to maintain these properties as open or undeveloped, or developed as permanent open uses such as parks or greenbelts. This zoning district also includes Folsom State Prison. Implementation of the design refinements would not result in any changes in the designated zonings in and adjacent to project area.

There is no prime, unique, or other farmland in the project area; therefore the project would have no effect on agricultural resources. The short-term use of 10 acres of highly disturbed Folsom State Prison land for a staging area would be consistent with its previous use during construction of Folsom Bridge. None of the other design refinements would affect existing land uses in or near the project area. As a result, the design refinements would have no effect on the overall land use.

3.2.4 Socioeconomics and Environmental Justice

The city of Folsom is within Sacramento County, approximately 25 miles east of downtown Sacramento on Highway 50. The U.S. Census Bureau reports that the population of Folsom was 72,203 in 2010, which was a population growth of approximately 39% since the 2000 Census. The population of Folsom is approximately 74% white, 12% Asian, 6% African American, 0.5% Native American, and 0.2% Pacific Islander, with the remaining percentages classified as other or more than one race (Census 2010). People of Hispanic origin make up approximately 11% of the city's population.

The labor force in the city of Folsom was 26,400 people in September 2011, with 25,000 employed people and 1,400 unemployed, and an unemployment rate of 5.4%. The city's unemployment rate is well below the unemployment rate for Sacramento County of 11.9% during the same time period (EDD 2011). The median family income in the city of Folsom from the years 2005 through 2009 was $93,620, and the per capita income is $34,320 (Census 2010). Employment opportunities near the project area include technology, food manufacturers, retail, health care, and education (City of Folsom 2011).

None of the design refinements 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 any low income or minority peoples. No populations would be displaced as a result of project construction, and no local industry would be disrupted by project activities. There would be no disproportionately adverse effects to minorities or low-income populations. As result, the proposed design refinements would have no effects on socioeconomic conditions or environmental justice.

3.2.5 Hazardous, Toxic, and Radiological Waste

In January 2012, the Corps prepared an updated Phase I Environmental Site Assessment (ESA) to identify and evaluate potential hazardous, toxic, and radiological waste (HTRW) in and near the approach channel feature of the Folsom JFP. The purpose of the ESA was to review available documentation regarding past and current land use activities to assess the possible presence of hazardous substances and waste. The ESA consisted of a records investigation and site reconnaissance, encompassing both the approach channel site and surrounding area. The "study area of analysis" for this ESA included the project area for this EA/EIR.

For the 2012 ESA, the Corps contracted with Environmental Data Resources, Inc. to perform comprehensive database searches of the study area of analysis. The records investigation

identified 78 HTRW sites, many of which were duplicated in multiple databases. The actual physical sites consisted of 16 aboveground storage tanks, underground storage tanks, treatment, generator, storage, or disposal facilities, as well as 23 mitigating sites or sites that had reported spills in the past. No sites were identified on the 10 acres of land to be used for staging.

Sites that were reported by Environmental Data Resources, Inc. would not affect the proposed construction because they are under control, exhibit no signs of continuing release and are generally more than one-forth mile away from the project area. Based on the ESA and field reconnaissance, the project would have no effects on HTRW sites, and there is no apparent HTRW contamination that would interfere with construction of the project.

While the construction of the temporary traffic signal, widening of the dirt access road, and construction of the drain would not require long-term storage or use of hazardous materials, there are potential health and safety hazards that include possible accidental spills or leaks involving fuels, lubricants, or explosives. Prior to initiation of construction, the contractor would be required to prepare a hazardous materials control and response plan, which would include best management practices (BMPs) and other measures to avoid or minimize any potential hazard. As result, the design refinements would not be expected to have any effects from use of hazardous materials.

3.2.6 Aesthetics/Visual Resources

An area's visual character is determined by the variety of the visual features present, the quality of those features, and the scope and scale of the scene. The visual components of a particular area consist of features such as landforms, vegetation, manmade structures, and land use patterns. The quality of these features depends on the relationship between them and their scale in the overall scene.

The primary aesthetic resource located within the project area is Folsom Lake itself, as well as the surrounding foothills, which include open space preserves and/or recreational areas. The hills within the project area are of lesser quality than those surrounding the lake, due to the presence of Folsom Dam and its earthen wing dams. The main spillway of Folsom Dam rises out of the lake, and a four-story tower sits atop Folsom Dam in sharp relief against the sky. The aesthetic value of such built features is subject to different interpretations based on the perspective and values of the viewer. Large engineering projects such as Folsom Dam may detract from the scenic character of the setting.

Folsom Lake experiences seasonal water fluctuations. The highest reservoir levels in Folsom Lake occur in late winter or early spring when storm and snowmelt runoff fill the reservoir. The lowest reservoir levels occur in the late fall or early winter following the dry season. The resulting fluctuations cause a “bathtub ring” effect which is common to California reservoirs (Reclamation 2006). The exposed, barren nature of the shoreline makes this area low in its visual quality. Additionally, the construction of the Folsom JFP and associated features over the past few years has added a highly disturbed quality to the view from residences, boaters/recreationists and motorists.

The primary viewers would consist of commuters and other motorists driving across Folsom Lake Crossing (bridge) and recreationists. Although there are no residences located in the project area itself, there are a few residences adjacent to the project area. Most visible to commuters using the Folsom Lake Crossing Bridge would be the installation of the temporary traffic signal, widening of the dirt access road, construction of the stilling basin drain, and concrete batch plant at the Folsom State Prison staging area. However, this area has ongoing construction from dam improvements; thus, the construction of the proposed action would not be a significant change from the current, existing conditions. As a result, the project would have no effects on the overall aesthetic value or visual resources of the Folsom Lake area.

3.2.7 Vegetation and Wildlife

The project area is currently highly disturbed and devoid of native vegetation or habitat for terrestrial wildlife species. Similarly, there are no wetlands or vernal pool habitats in the project area. Except for ruderal vegetation growing at the Folsom State Prison staging area, the project area lacks any cover and vegetation structure and therefore is not conducive for prolonged periods of wildlife use such as denning, nesting, or rearing juveniles. This is especially true in the excavated and graded foundations for the stilling basin. Due to this lack of native vegetation and suitable habitat within the construction footprint of the Folsom State Prison staging area, traffic signal, access road, and drain, the design refinements would not be expected to have any effects on vegetation or wildlife.

Migratory birds such as killdeer, mourning doves, crows, cliff swallows, and their habitats are protected under the Migratory Bird Treaty Act, as amended (16 U.S.C 703 et seq.). The project area is highly disturbed, and lacks suitable foraging, resting, and nesting areas. As a result, the design refinements would not be expected to have any effects on migratory birds. To ensure that there would be no effect, preconstruction surveys would be conducted prior to any work scheduled during the nesting season. If any breeding birds or active nests are found, a protective buffer would be delineated, and the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) would be consulted for further action prior to construction.

The Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), as amended, ensures that fish and wildlife resources receive consideration equal to that of other project features for projects that are constructed, licensed, or permitted under Federal agencies. This coordination is intended to promote the conservation of wildlife resources by preventing loss or damage to fish and wildlife resources, and to provide for the development and improvement of these resources in connection with water resource projects.

In March 2006, the USFWS provided the Corps with a Coordination Act Report (2006 CAR) for the Folsom Bridge Project (Appendix A). The footprint of the design refinements lies entirely within the footprint of this bridge project. The USFWS provided the Corps with a letter, dated August 20, 2012, providing additional general recommendations. The following measures would be implemented:

- Avoid effects to any oak woodlands and riparian areas outside, but in close proximity to, the construction easement and staging areas by fencing their boundaries with orange construction fencing or cyclone fencing just outside of the dripline of the woody vegetation.

- Avoid effects to nesting migratory birds by clearing any riparian or seasonal wetland vegetation during the summer months after any young of nesting birdshave fledged.

- Minimize effects to fish and wildlife resources and their habitat by confining travel to established roads/paths in the project area and by confining parking to established areas (parking lots and staging areas).

- Minimize effects to wildlife by seeding all disturbed areas with annual grasses at the completion of construction or when currently disturbed areas are going to remain unused for the growing season.

With implementation of USFWS recommendations, the project would have no effect on vegetation or wildlife.

3.2.8 Special Status Species

A listing of Federally listed endangered, threatened, proposed, and candidate species (listed species) and critical habitat was reviewed for the Folsom and Clarksville 7.5-minute USGS quadrangles (USFWS 2012). In addition, records from the California Natural Diversity Database (CNDDB) were reviewed for State-listed endangered or threatened species (CDFG 2012) Additionally, biological field surveys by Reclamation identified coopers hawk, white tailed kite, and yellow warbler within a half mile of the project area (Reclamation 2009).

Record searches indicated that 10 Federally listed species and two State-listed species of concern have the potential to occur within a quarter mile of the project area. Table 1 summarizes the regulatory listing status, habitat requirements, and potential for these species to occur in the project area. A compiled list from both the USFWS and CNDDB searches is presented in Appendix B.

The project area is highly disturbed with only a few scattered non-native annual grasses and forbs. As such, the area lacks cover or vegetative structure suitable foraging, nesting, or hiding/resting. In addition, there are no elderberry shrubs, marshes, or vernal pools in or near the work areas. As a result, there is no suitable habitat for any of the special status species in Table 1, and the design refinements would have no effect on these listed species. To ensure that there would be no effect, pre-construction surveys would be conducted by qualified biologists in areas that may contain suitable habitat for special-status plant, invertebrate, or wildlife species. If the biologists identify any of these special status species or suitable habitat, the Corps would contact the USFWS regarding any necessary measures to provide protection.

Table 1. Special Status Species with Potential to Occur in Project Area

Species	Status	Habitat	Potential for Occurrence
Invertebrates			
Conservancy fairy shrimp *Branchinecta conservation*	FE	Inhabits vernal pools	Unlikely; no vernal pools in the project area
vernal pool fairy shrimp *Branchinecta lynchi*	FT	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swales, earth slumps, or basalt-flow depression pools.	Unlikely; no vernal pools in the project area
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*); primarily in riparian woodland and scrub habitat	Unlikely; nearest elderberry shrub approximately 900 feet from stilling basin.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools in the Central Valley.	Unlikely; no vernal pools in the project area.
Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	SSC	Inhabits weedy, shallow, open water, associated fresh water seeps, springs, farm ponds, vernal pools, and slow moving stream habitats.	Unlikely; no vernal in the project area.
Amphibians and Reptiles			
California tiger salamander, central population *Ambystoma californiense*	FT	California endemic, a lowland species restricted to the grasslands and lowest foothill regions of central and northern California, which is where its breeding habitat (long-lasting rain pools) occurs. During dry-season, uses small mammal burrows as refuge, travelling up to nearly a mile.	No, outside the spawning range for the species.
California red-legged frog *Rana draytonii*	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian	Unlikely; Folsom Reservoir unsuitable for this species

Species	Status	Habitat	Potential for Occurrence
		vegetation. Requires 11-20 weeks of permanent water for larval development and must have access to aestivation habitat.	
Giant garter snake *Thamnophis gigas*	FT	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. Most aquatic garter snake in California.	Unlikely; no suitable habitat in project area.
Birds			
Tricolored blackbird *Agelaius tricolor*	SSC	Highly colonial species, most numerous in Central Valley and vicinity: largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a mile or two of the colony.	Unlikely; no suitable habitat in project area.
Cooper's hawk *Accipiter cooperii*	SSC	Nests in dense stands of oak and conifer woodlands, and valley foothill riparian habitat. Forges in savanna/ grassland edge habitat.	Unlikely; no suitable nesting or forging habitat is located within project area.
Yellow warbler *Dendroica petechia*	SSC	Nests in riparian woodland or forest dominated by cottonwoods and willows. Occurs principally as a migrant and summer resident from late March through early October; breeds from April to late July.	Unlikely; no suitable nesting or forging habitat in project area. Could be observed during migration in California.
White tailed kite *Elanus leucurus*	SP	Nests in woodlands and isolated trees; forges in grasslands, shrublands, and agricultural fields	Unlikely; no suitable nesting or forging habitat in project area.

(FE) Federal endangered species
(FT) Federal threatened species
(FP) State fully protected
(ST) State threatened species
(SE) State endangered species
(SSC) California species of special concern

3.3 Resources Considered in Detail

Results of an initial evaluation indicated that the proposed action could affect the following resources. Sections 3.3.1 through 3.3.10 describe the existing conditions, effects, and proposed

mitigation for the resources that may be significantly affected by the implementation of the proposed action. Both direct and indirect effects are evaluated.

3.3.1 Air Quality

This section describes the existing conditions for air quality, regulatory background, significance thresholds, effect analysis, and a qualitative analysis of effects.

Regulatory Background

Air quality management responsibilities exist at Federal, State, and local levels of government. The primary statutes that establish ambient air quality standards and the regulatory authorities necessary to enforce the regulations designed to attain those standards are the Federal Clean Air Act (CAA) and California Clean Air Act (CCAA). The enforcement of Federal and State air statutes and regulations is complex and the various agencies have different, but interrelated responsibilities.

The Federal Clean Air Act, which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment (40 CFR part 50). Federal ambient air quality standards have been established for six "criteria pollutants":

- Carbon monoxide (CO),
- Ozone (O3),
- Inhalable particulate matter (PM_{10} and $PM_{2.5}$—particulates 10 microns or less in diameter and 2.5 microns or less in diameter, respectively),
- Nitrogen dioxide (NO2),
- Sulfur dioxide (SO2), and
- Lead.

Primary standards were established to promote human health with an adequate margin of safety to protect those most vulnerable such as asthmatics, infants, and elderly persons. More stringent secondary standards were established to promote human welfare to prevent impaired visibility, and building and crop damage.

The California Clean Air Act establishes California AAQS. These standards are more stringent than Federal standards and include pollutants not listed under Federal standards. All Federal projects in California must comply with the stricter State air quality standards. In California, the Air Resources Board (CARB) is the responsible agency for air quality regulation. The National AAQS and the California AAQS tables are available in Appendix C.

Areas are classified as either *in attainment or in nonattainment* with respect to State and Federal AAQS. These classifications are made by comparing actual monitored air pollutant

concentrations to State and Federal standards. If a pollutant concentration is lower than the State or Federal standard, the area is considered to be *in attainment* of the standard for that pollutant. If pollutant levels exceed a standard, the area is considered a *nonattainment* area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated *unclassified*.

To implement Section 176 of the CAA, the EPA issued the General Conformity Rule which states that a Federal action must not cause or contribute to any violation of the NAAQS, or delay timely attainment of air-quality standards. A conformity determination is required for each pollutant where the total of direct and indirect emissions caused by a Federal action in a non-attainment (or maintenance) area exceeds *de minimus* rates listed in the rule (40 CFR 93.153). The Federal standard and local thresholds for Sacramento County are shown in Table 2.

Table 2. Air Emission Thresholds for Federal and Local Criteria Pollutants.

Criteria Pollutant	Federal Standard (tons/year)	SMAQMD Threshold (lbs/day)
NO_x	25	85
CO	100	*
SO	100	*
PM_{10}	100	*
ROG	25	*

NO_x = nitrogen oxides CO = carbon monoxide SO = sulfur oxides PM_{10} = particulate matter
ROG = reactive organic gases
SMAQMD = Sacramento Metropolitan Air Quality Management District * = default to State standard
Source: www.airquality.org/ceqa/index.shtml, 2005

Local AQMDs are responsible for implementing Federal and State regulations at the local level. The project area is in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is included in the Sacramento Federal Ozone Nonattainment Area (SFNA) and is also subject to regulations, attainment goals, and standards of the U.S. and California EPA's.

As a part of the SFNA, Sacramento County is out of compliance with the State and Federal ozone standards. The EPA General Conformity Regulation requires that "serious" designated nonattainment areas further reduce NOx and ROD thresholds to 50 tons/year rather than 100 tons/year. Additionally, SMAQMD and CARB have petitioned the EPA for voluntary reclassification from "serious" to "severe" for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019, was submitted from the Air Resources Board to EPA on February 14, 2008. EPA approved the request effective June 4, 2010. The designate "severe" nonattainment status lowered NOx and ROG thresholds to 25 tons/year.

The area is designated as nonattainment for the PM_{10} NAAQS, however, no approved State Implementation Plan for PM_{10} currently exists. The area has achieved the PM_{10} NAAQS, but the SMAQMD must request redesignation to attainment and submit a maintenance plan to be formally designated as attainment.

Toxic Air Contaminants

In addition to the Federal and State criteria pollutants, the Federal CAA and CCAA have identified another class of pollutants. Hazardous air pollutants is a term used by the Federal CAA that includes a variety of pollutants that are known or suspected carcinogens and are generated or emitted by a wide variety of industries. Ten toxic air contaminants (TAC) under the CCAA 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. The TAC of interest to this project is diesel particulate matter (PM).

TACs do not have ambient air quality standards because no safe levels of TAC have been determined. Instead, TAC effects are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the Act must prepare and submit toxic emission inventory plans and reports, and periodically update those reports.

Diesel-fueled mobile sources including motor vehicles and off-road equipment emit compound emissions such as diesel PM, which is recognized as a TAC by CARB. Emissions of diesel PM have been related to long-term health effects, including noncancer chronic hazards and increased cancer risk. Temporary construction activities would include operation of diesel-fueled nonroad equipment resulting in emissions of diesel PM. However, construction activities would occur over a finite period of time (approximately 4 months); therefore, diesel PM emissions would result in short-term, temporary impacts, and would not result in long-term cancer risk to residents and workers. In addition, the Folsom facility is not identified as a TAC emitting facility by the SMAQMD. Therefore, because of the short-term duration of emissions, and because emissions of diesel PM are less than 10 tons per year (Table 3), a health risk assessment would not be required; thus, prioritization screening was not conducted for this analysis.

Existing Conditions

With three exceptions, the SFNA is in attainment for all National and State AAQS. However, the area is designated a "severe" nonattainment area for the National 8-hour AAQS for ozone and is a "serious" nonattainment area for the State's 1-hour ozone standard. The area is designated as "moderate" nonattainment for the National 24-hour AAQS for PM_{10}, and nonattainment for $PM_{2.5.}$

In June 2004, the U.S. EPA proposed to classify Sacramento County in attainment of the new Federal $PM_{2.5}$ standard (SMAQMD, 2004). On October 16, 2006, the standard for $PM_{2.5}$ was lowered from 65µg/m3 to the daily standard of 35µg/m3, which Sacramento does not meet. In October, 2007, the Air District completed its boundary analysis and in December 2007, the California Air Resources Board made their recommendations on a nonattainment area boundary to the EPA. The California Clean Air Act of 1988 requires nonattainment areas to achieve and

maintain the State ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

Sensitive Receptors

Some locations are considered more sensitive to adverse effects from air pollution than others. These locations are termed sensitive receptors. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the ambient air quality standard (e.g., 24-hour, 8-hour, and 1-hour). These typically include residences, hospitals, and schools. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Hospitals, schools, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation can place a high demand on the respiratory system. Sensitive receptors in the project area include residents, recreational users, Folsom State Prison inmates and staff, and wildlife.

Environmental Effects

Significance Criteria

Air quality effects would be considered significant if the proposed action would:

- Violate any of the air quality standards,
- Expose sensitive receptors to substantial pollutant concentrations, or
- Not conform to applicable Federal and State standards, and local thresholds on a long term basis.

The CEQA thresholds of significance were obtained from the SMAQMD CEQA Guide to Air Quality Assessment (SMAQMD 2009), which lists only a NO_X threshold of 85 pounds per day for construction emissions. For PM_{10} from construction, in areas where the maximum daily disturbed land (i.e., grading, excavation, cut and fill) would not exceed 15 acres, the SMAQMD CEQA guidelines require implementing emission control practices for impacts to be considered less than significant.

Methodology

The SMAQMD Road Construction Emissions Model (v. 6.3.2) was used to estimate project emission rates for ROG, CO, NOx, $PM_{10,}$ $PM_{2.5,}$ and CO_2. The estimated equipment to be used, volume of material to be moved, and disturbance acreages were compiled to determine the data to input into the emissions model. Assumptions on construction equipment for each design refinement are described in Section 2.3. The emission calculations are based on standard vehicle

emission rates built into the model. It was assumed flaggers and road signs would be used, if necessary, rather than signal boards.

The total project footprint equals 12 acres; i.e., the 10-acre staging area plus approximately the 2-acre footprint for the other design refinements. For the maximum area disturbed, the total project foot print was averaged over the 4- month construction period. It was assumed that minimal clearing and grubbing would be required at the Folsom State Prison since the only vegetation is non-native grass. Estimated construction periods for each design refinement are described in Section 2.3.

In addition, it was assumed that 32,000 cubic yards of fill material would be required for the haul road construction. The source of the fill material would be at MIAD, approximately 2.5 miles away. The transport of materials would take approximately 1,600 truck trips, over a course of 4 weeks with a 5-day workweek, which translates to 80 round trips per day. For the stilling basin drain, it was assumed that 425 cubic yards of material would be excavated and disposed of at MIAD.

Air quality calculations are summarized in Appendix D. The installation and operation of a concrete batch plant were evaluated in the 2010 EA/EIR and are not being evaluated in this document. Emissions calculated for the concrete batch plant can be found in Appendix E.

No Action

Under the no action alternative, the Corps and CVFPB would not use of the Folsom State Prison land for staging, install the temporary traffic signal, widen of the dirt access road, and construct the spillway basin drain. As a result, there would be no increase air quality effects from the construction activities associated with the design refinements, including equipment emissions and fugitive dust. Air quality would be influenced by emissions due to the ongoing and future construction of other Folsom JFP features, climate and geographic conditions, and local and regional emissions from vehicles, and local commercial and industrial land uses.

Implement Design Refinements

The work to use the Folsom State Prison as a staging area, install the temporary traffic signal, widen the existing dirt access road, and construct the stilling basin drain would not substantially overlap, so the maximum annual emissions were calculated for the total construction period. Construction of the proposed action would result in short-term temporary generation of ROG, CO, NO_X, PM_{10}, $PM_{2.5,}$ and CO_2 emissions from excavation, vegetation clearing, motor vehicle exhaust associated with construction equipment, employee commute trips, material transport, material handling and other construction activities. Annual emissions were calculated based on assumptions on the type of construction equipment required for each design refinement.

Table 3 summarizes emissions for ROG, CO, NO_X, PM_{10}, $PM_{2.5,}$ and CO_2, for the design refinements and compares them to both the general conformity rule (GCR) *de minimis* thresholds and the SMAQMD CEQA NO_X threshold for determination of significance of impacts. Total

tons/year was calculated by multiplying the project emissions lbs/day by 365, then dividing by 2000 for the purposes of emissions estimates.

Based on the estimates presented in Table 3, proposed action would not produce emissions that are greater than the GCR *de minimus* values for criteria pollutants. The estimated worst-case annual emissions generated from implementation of the proposed action would not exceed Federal or SMAQMD thresholds.

Table 3. Estimated Emissions.

	ROG	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Site Preparation & Construction						
Total emissions (lbs/day)	5.3	37.5	39.4	3.8	2.0	5,246.1
SMAQMD thresholds (lbs/day)	N/A	85	N/A	N/A	N/A	N/A
Total (tons/construction project)	0.2	1.1	1.4	0.1	0.1	175.8
Total (tons/year)	0.95	6.55	7.17	0.69	0.37	957
Federal Standards (tons/year)	25	100	25	100	N/A	N/A

The proposed action is a short-term construction project. The use Folsom State Prison land for staging area, installation of a temporary traffic signal, and widening of the dirt access road are short-term, temporary features and would be removed upon Folsom JFP completion. As a result, there would be no long-term increase in regional emissions of ROG, CO, NO_X, PM_{10}, $PM_{2.5}$, and CO_2 due to operation of these refinements. The construction of the stilling basin drain could require a negligible increase in maintenance activities and associated vehicle trips.

The project would result in short-term generation of criteria pollutants concentrations, including diesel exhaust emissions, from the use of off-road construction equipment required for site preparation and other activities, and on-road haul and dump trucks used for hauling materials. The duration of mobilized equipment used near sensitive receptors located near the project area would be approximately 4 months and mobile equipment would not operate within 500 feet of sensitive receptors. Because sensitive receptors would not be exposed to substantial pollutants and emissions are below SMAQMD thresholds, the impact would be less than significant.

General Conformity

The Federal CAA requires Federal agencies to ensure that their actions conform to applicable implementation plans for the achievement and maintenance of the NAAQS for criteria pollutants. To achieve conformity, a Federal action must not contribute to new violations of NAAQS, increase the frequency or severity of existing violations, or delay timely attainment of standards in the area of concern (for example, a state or a smaller air quality region).

The proposed action is located in an area whose Federal status is designated as severe nonattainment for O_3 (8-hour standard), moderate nonattainment for PM_{10}, and nonattainment for $PM_{2.5}$. As shown in Tables 2, the proposed action would not produce emissions that are greater than the GCR *de minimus* values for criteria pollutants. Therefore, the proposed action falls into

conformity with the EPA-approved State Implementation Plan and a written Conformity Determination is not required.

Mitigation

Since there would be no significant effects on air quality, no mitigation would be required. However, due to the nonattainment status of Sacramento County with respect to O_3, PM_{10}, and $PM_{2.5}$, SMAQMD (2009) recommends that projects within the basin implement a set of Basic Construction Emission Control Practices as BMPs regardless of the significance determination. Use of these practices can result in a 55 percent reduction of fugitive PM_{10} dust emissions from soil disturbance areas and a 44 percent reduction of fugitive PM dust emissions from entrained PM_{10} road dust from unpaved roads (SMAQMD 2009). The Basic Construction Emission Control Practices that would be implemented by the contractor during the construction project are the following:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to five minutes (as required by the state airborne toxics control measure [Title 13, Section 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 determine to be running in proper condition before it is operated.

In addition, SMAQMD recommends that the project implement a set of Enhanced Exhaust Control Practices to further reduce hydrocarbon emissions. The Enhanced Exhaust Control Practices that would be implemented by the contractor during construction include the following:

- Provide a plan for approval by the lead agency and SMAQMD demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, would achieve a project-wide fleet-average 20 percent NOX reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options

for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The SMAQMD's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

- Submit to the lead agency and SMAQMD 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 48 hours prior to the use of subject heavy-duty off-road equipment, the contractor would provide SMAQMD 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.
- Ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) would be repaired immediately. Non-compliant equipment would be documented and a summary provided to the lead agency and SMAQMD monthly. A visual survey of all in-operation equipment would be made at least weekly, and a monthly summary of the visual survey results would be submitted throughout the duration of the project, except that the monthly summary would not be required for any 30-day period in which no construction activity occurs. The monthly summary would include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section would supercede other SMAQMD or State rules or regulations.
- If at the time of construction, SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the SMAQMD prior to construction would be necessary to make this determination.

3.3.2 Climate Change

Ongoing scientific research has identified the general impacts of anthropogenic green house gasses (GHG) emissions and changes in biological carbon sequestration due to land management activities on global climate. The term "greenhouse gas" or "greenhouse gases" includes but is not limited to: carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (NO_2).

GHG naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the Earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into

space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect on the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, historic industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent concentrations to increase dramatically, and clearly contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change (IPCC) concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations" (IPCC 2007).

Global mean surface temperatures have increased nearly 1.8 degrees Fahrenheit (°F) from 1890 to 2006 (IPCC 2007). Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24° North) have exhibited temperature increases of nearly 2.1 degrees Fahrenheit (°F) since 1900, with nearly a 1.8°F increase since 1970 alone (IPCC 2007). Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Regulatory Background

No Federal regulations regarding climate change apply to the proposed action. The Environmental Protection Agency has started the process of regulating large sources of GHG emissions (e.g., power plants, cement manufacturing), but these proposed regulations are not applicable to the proposed action. California laws and executive orders that address GHGs and climate change are summarized in Table 4.

The proposed project does not include any features or activities that would change the regional climate conditions. Therefore, there would be no effect on the local climate as a result of construction of the proposed project.

Existing Conditions

Local Climatic Conditions

In general, the climates of California formed due to topography and the position of the semi-permanent subtropical cell, a center of high atmospheric pressure in the Pacific Ocean off the California coast. During the summer, the cell moves over northern California and Nevada and effectively blocks the movements of the Pacific storm systems into California, creating drought-like conditions. During the winter, the cell retreats to the southwest, allowing storms and frontal systems to move into northern and central California. As a result, California has a Mediterranean, semi-arid climate that is typically characterized by cool, wet winters and hot, dry summers.

Table 4. Summary of State Laws and Executive Orders that Address Climate Change.

Legislation Name	Signed into Law/ Ordered	Description	CEQA Relevance
SB 1771	09/2000	Establishment of California Climate Registry to develop protocols for voluntary accounting and tracking of GHG emissions.	In 2007, DWR began tracking GHG emissions for all departmental operations.
AB 1473	07/2002	Directs CARB to establish fuel standards for noncommercial vehicles that would provide the maximum feasible reduction of GHGs.	Reduction of GHG emissions from noncommercial vehicle travel.
SB 1078, 107, EO S-14-08	09/2002, 09/2006, 11/2008	Establishment of renewable energy goals as a percentage of total energy supplied in the State.	Reduction of GHG emissions from purchased electrical power.
EO S-3-05, AB 32 [1]	06/2005, 09/2006	Establishment of statewide GHG reduction targets and biennial science assessment reporting on climate change impacts and adaptation and progress toward meeting GHG reduction goals.	Projects required to be consistent with statewide GHG reduction plan and reports will provide information for climate change adaptation analysis.
SB 1368	9/2006	Establishment of GHG emission performance standards for base load electrical power generation.	Reduction of GHG emissions from purchased electrical power.
EO S-1-07	01/2007	Establishment of Low Carbon Fuel Standard.	Reduction of GHG emissions from transportation activities.
SB 97[1]	08/2007	Directs OPR to develop guideline amendments for the analysis of climate change in CEQA documents.	Requires climate change analysis in all CEQA documents.
SB 375	09/2008	Requires metropolitan planning organizations to include sustainable communities strategies in their regional transportation plans.	Reduction of GHG emissions associated with housing and transportation.
EO S-13-08 [1]	11/2008	Directs the Resource Agency to work with the National Academy of Sciences to produce a California Sea Level Rise Assessment Report, and directs the Climate Action Team to develop a California Climate Adaptation Strategy.	Information in the reports will provide information for climate change adaptation analysis.

[1]Significant laws and orders.

During the summer months the project area (in the vicinity of Folsom Reservoir) normally experiences cloudless, warm-to-hot dry days, and mild, pleasant nights. Summer temperatures average approximately 90 degrees Fahrenheit (ºF) during the day and 60 ºF at night. Summer average rainfall amount in the area is generally around 1.05 inches. The winter "rainy season" is from November through March when periodic storms move in from the Pacific Ocean. The average rainfall during these months is 19.96 inches. Winter daytime temperatures average in the upper 50's, and nighttime temperatures average in the lower 40's. Moist winds are predominately from the southwest, building strength from the Delta region, while occasional dry winds originate from the north.

The proposed project does not include any features or activities that would change the regional climate conditions. Therefore, there would be no effect on the local climate as a result of construction of the proposed project.

Greenhouse Gases (GHG)

The six principal GHGs of concern are CO_2, methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFC), and perfluorocarbons (PFC). The EPA does not currently regulate the GHG pollutants that could contribute to global warming. However, on December 7, 2009, the Administrator of the EPA signed two findings regarding the threat to public health and welfare from GHGs under section 202(a) of the Federal CAA. Accordingly, in the future, the EPA can promulgate regulations pertaining to emissions of GHGs under the authority of the Federal CAA.

While the Federal Government has not regulated emissions of GHG, the State of California has been proactive in the study of effects of climate change with a 20-year history of doing so. State actions to address global climate change target automobile emissions, stationary sources and power generation, land-use planning, and the development of sustainable communities.

California is a substantial contributor of global GHG as it is the second largest contributor in the U.S. and the sixteenth largest in the world (CEC 2006). While California has a high amount of GHG emissions, it has low emissions per capita. The major sources of GHG in California are transportation, electricity generation, and emissions from fuel use (CEC 2006).

GHG emissions are now being considered as a relatively new issue in CEQA documents because of their effects to climate change. Historically, there have been no standard, widely used methodologies or significance criteria to address climate change effects from GHG emissions. Air districts have generally provided guidance on analysis methodologies and significance criteria for criteria pollutant and toxic air contaminant effects, but they have not established guidelines for GHG emissions and their effects.

To assist lead agencies with this new impact area, the California Air Pollution Control Officer's Association prepared a "white paper" reviewing policy choices, analytical tools, and mitigation strategies (CAPCOA 2008). This paper considers the application of thresholds (there

are currently no widely-accepted significance thresholds or criteria) and offers three alternative programmatic approaches towards determining whether GHG emissions are significant.

Recently, CARB prepared proposed interim GHG significance thresholds, which are sector-specific in terms of what types of activities generate the GHG emissions. Until a statewide standard or threshold of significance for GHG emissions is completed, the Office of Planning and Research (OPR) advises that each lead agency should develop its own approach to performing an analysis for projects that generate GHG emissions, consistent with available guidance and current CEQA practice (OPR 2008).

OPR sets out the following process for evaluating GHG emissions:

- Agencies should determine whether GHG emissions would be generated by a proposed project, and if so, quantify or estimate the emissions by type or source. Calculation, modeling, or estimation of GHG emissions should include the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities.
- Agencies should assess whether the GHG emissions are individually or cumulatively significant. When accessing whether a project's effects on climate change are "cumulatively considerable" even though a project's GHG emissions could be individually limited, the lead agency must consider the effect of the project in connection with the effects of past, current, and probable future projects.

If the lead agency determines that the GHG emissions are potentially significant, then it must investigate and implement ways to mitigate the emissions (OPR 2008).

Environmental Effects

Significance Criteria

SMAQMD has not established thresholds for GHG emissions; instead, each project is evaluated on a case-by-case basis using the most up-to-date methods of calculation and analysis. The impacts of the proposed project alternatives related to climate change should be evaluated using the criteria listed below. According to Appendix G of the CEQA Guidelines, the proposed project could result in significant impacts if it would do either of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The following significance criteria will be used to determine the significance of GHG emissions from this project:

- If the relative amounts of GHG emissions resulting from implementation of the proposed project are substantial compared to emissions major facilities are required to report (25,000 CO_2e per year).
- If the proposed project has the potential to contribute to a lower carbon future.

No existing threshold levels for GHGs have been developed at the Federal level for NEPA projects. The USEPA has established a reporting threshold of 25,000 metric tons of CO2 metric tons that applies to most entities that emit more than this amount per year.

Methodology

In response to the concerns regarding greenhouse gas emissions, the most recent version of the SMAQMD Road Construction Emissions Model (v. 6.3.2) now generates an output for CO_2. The results from the emissions model in Table 3 include CO_2. Emissions were estimated based on the type of equipment being used, the level of equipment activity, and the associated construction schedules.

No Action

Under the no action alternative, the Corps and CVFPB would not use of the Folsom State Prison land for staging, install the temporary traffic signal, widen of the dirt access road, and construct the spillway basin drain. As a result, there would be no additional generation of GHGs from the construction activities associated with the design refinements, including operation of motorized equipment and vehicles. Climate change would be influenced by emissions due to the ongoing and future construction of other Folsom JFP features, local and regional emissions from vehicles, and local commercial and industrial land uses.

Implement Design Refinements

Project construction would result in a net increase of GHG emissions over a finite period, approximately 4 months for construction and 4 years for the operation of the concrete batch plant. CO_2 is produced during the burning of fossil fuels and is the predominant GHG generated during this project. Because no major sources exist for the other GHGs during the construction process, the other GHGs are not considered to be significant and no quantitative emission calculations were made for them.

The major stages of the construction project are the use of the Folsom State Prison land for staging, installation of the traffic signal, widening of the dirt access road, and construction of the stilling basin drain. Table 3 in Section 3.3.3 summarizes CO_2 emissions from activities undertaken during construction. The CO_2 emissions occur during the burning of fossil fuels and the manufacture of concrete. The amount of CO_2 emissions is estimated to be 175.8 tons per the construction period. This amount of CO_2 emission would not violate the 25,000 metric tons per year reporting level for any year of construction. Additionally, there would be no long-term operational emissions associated with this alternative. Therefore, the proposed action would

generate a less than significant amount of GHG emissions and would not have a significant environmental impact related to climate change.

As described above, the proposed action would be below the CARB interim threshold of 7,000 metric tons of CO2e/yr and therefore would not pose any apparent conflict with the goals of AB 32, Climate Change Scoping Plan key elements, and GHG reduction measures to any other plan for reduction or mitigation of GHGs. As a result, the proposed action would be less than significant.

The project is primarily a construction project resulting in a short-term, temporary GHG emissions from combustion associated with on and off road equipment. All features of the proposed action, except the stilling basin drain, would be removed upon completion of the Folsom JFP. GHG emissions from the stilling basin drain maintenance would be negligible and are assumed not to have a significant impact on the regional GHG inventories. In addition, the project would not conflict with any plan, policy, or regulation of an agency adopted to reduce the emissions of GHGs, and the BMPs listed below would be implemented to contribute to a lower carbon footprint. As a result, any effects of the design refinements on climate change would be less than significant.

Mitigation

Since there would be no significant effects on climate change, no mitigation would be required. However, the following measures would be implemented by the contractor to reduce any GHG emissions from construction of the design refinements (SMAQMD 2009). These measures would be implemented to contribute a lower carbon footprint.

- Improve fuel efficiency from construction equipment by minimizing idling time either by shutting equipment off when not in use or reducing the time of idling to no more than three minutes (five minute limit is required by the state airborne toxics control measure [Title 13, Section 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.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Produce concrete on-site if determined to be less emissive than transporting ready mix.

3.3.3 Noise and Vibration

This section describes the existing conditions for noise in the vicinity of the project area, regulatory background, significance thresholds, effect analysis, and mitigation measures.

Regulatory Background

Acceptable levels of environmental noise are regulated at the local level through the general plan process and city and county noise ordinances. The proposed action is located in the City of Folsom. Some traffic is expected through Sacramento County, Placer County, and El Dorado County. All construction noise from the project would occur in the City of Folsom and Sacramento County. For the purpose of this project, the City of Folsom's standards would be followed because it is the closest jurisdiction with the most restrictive noise ordinance.

The City of Folsom uses L_{50} as the baseline criterion level. The baseline criterion level (L_{50}) is 50 dBA during daytime and 45 dBA during nighttime. If this criterion is met within the City of Folsom, noise standards for other nearby jurisdictions would also be achieved. For the City of Folsom, construction noise exemptions allow for noise generated by construction would not be subject to the exterior noise standard limits. These exempt times last from 7:00 a.m. to 6:00 p.m. during weekdays and 8:00 a.m. to 5:00 p.m. on weekends.

Existing Conditions

Sound is a disturbance in an elastic medium resulting in an audible sensation. Sound is also defined as mechanical energy transmitted from a vibrating or flowing source by longitudinal (or compression) waves through a compressible medium such as air. The term "noise" is both qualitative and quantitative, and is typically referred to as "unwanted" sound.

Most ambient environmental noise includes a mixture of noise from nearby and distant sources that creates an ebb and flow of sound, including some identifiable sources plus a relatively steady background noise in which no particular source is identifiable. The primary sources of ambient (background) noise are construction equipment around Folsom Dam and vehicular traffic on area roadways is the dominant source of noise affecting noise-sensitive land uses in the project area. Occasional aircraft overflights and natural background sound sources are also part of the existing noise environment, but are not significant contributors to the overall noise levels.

The noise levels in the project area vary, depending on the time of day, number and types of noise sources, and distance from the sources of noise. Extensive ambient noise data were obtained by URS in February 2012 to characterize existing noise conditions (Corps, 2012). The noise data can be found in Appendix F. Based on this report, levels of noise during the day are highest along city streets during commute hours because of the increased number of motor vehicles. Typical noise levels in decibels (dB) range from 32 to 50 dB's in quiet residential areas to 60 to 75 dB's on busy streets. Noise-sensitive land uses in or near the project area include residential homes and the Folsom State Prison, while sensitive receptors area include residents, recreational users, Folsom State Prison inmates and staff, and wildlife (Plate 6).

Environmental Effects

Significance Criteria

Noise and vibration effects would be considered significant if the proposed action would:

- Result in substantial temporary or periodical increase in ambient noise levels in the project vicinity above levels existing without the project;
- Construction activities occur outside the City of Folsom exempt hours;
- Expose people residing or working in the project area to excessive noise levels; or
- Expose people to or generate excessive ground-borne vibration or ground-borne noise levels that exceed California Department of Transportation's (Caltrans) recommended standards.

Short-term construction noise impacts are considered significant if construction generated noise levels exceed the applicable standards of the City of Folsom which (L_{50}) is 50 dBA during the hours from 7:00 a.m. to 10:00 p.m. and 45 dBA during the hours from 10:00 p.m. to 7:00 a.m. at nearby noise sensitive land uses.

Short and long term vibration impacts would be significant if the project construction would expose sensitive receptors to or would generate vibration levels that exceed Caltrans recommended standard of 0.2 inch per second (in/sec) peak particle velocity (PPV) or the Federal Transit Administration's (FTA's) maximum acceptable vibration standard of 80 vibration decibels (VdB) at nearby sensitive land uses.

Methodology

Construction of the proposed action would require the use of heavy equipment that would temporarily increase noise and/or groundborne vibration levels at properties near the work sites. The proposed action is short term and temporary and would not require long term maintenance. Therefore, the analysis of noise impacts focused primarily on noise generation during construction of each design refinement.

Construction-related noise impacts were calculated using the Federal Transit Noise and Vibration Impact Assessment methodology (Federal Transit Administration, 2006). Project activities that were assessed include: traffic signal installation, modifications to the Folsom State Prison property, and construction of the stilling basin drain. Table 5 presents typical noise levels for various types of construction equipment. Construction noise impacts for each design refinement was evaluated separately because the construction of the refinements would not overlap.

Table 5. Typical Noise Emission Levels for Construction Equipment.

Equipment	Typical Noise Level (dBA) 50 feet from Source
Auger, powered	84
Backhoe	80
Batch Plant	85
Compactor	82
Conveyor	50-65[1]
Crane	83
Excavator	85
Generator	81
Grader	85
Horizontal Boring Rig	82
Hoe-ram	90
Paving Machine	77
Rock Hauler	81
Roller	74
Scraper	84
Truck	74-88
Vertical drill	81

[1]Extracted from table in U.S. Army Garrison-Hawaii, 2004.
Source: Federal Transit Administration 2006, Federal Highway Administration 2006.

For each design refinement, noise generated by the peak construction phase was estimated using the FTA sound propagation method for construction noise sources (Federal Transit Administration, 2006). Noise levels were calculated assuming continuous operation of the three loudest pieces of equipment. In reality, construction activities would likely be intermittent, so actual noise levels could be somewhat lower than the estimated values. Noise from construction activity generally attenuates (decreases) at a rate of 6.0 to 7.5 dBA per doubling of distance from the source. Any shielding effects that may result from local barriers such as topography, fences, vegetation, etc., are not incorporated, so the calculated noise levels represent a conservative or "worst-case" estimation.

Haul traffic would be routed on main arterial roadways and was evaluated in the 2010 EA/IS which concluded a temporary incremental increase in traffic noise from the daytime (7 a.m. to 6 p.m.) due to the transportation of material and equipment associated with project activities would range from less than one dBA to less than three dBA. Small increases less than three dBA are typically not perceived and therefore, the project would not contribute to an increase in traffic noise levels.

Noise levels for the batch plant operations were analyzed in the 2010 EA/IS at the Overlook and inside the chute, but did not address noise levels at the Folsom State Prison staging area. Noise generated from the batch plant located at the Folsom State Prison staging area is addressed in this EA/EIR. A study completed in February 2012 by URS reviewed noise impacts of

a batch plant located at the Folsom State Prison staging area (Appendix F). Noise effects were predicted using CadnaA for the batch plant operations at the Folsom State Prison staging area.

Similar to noise, vibration also attenuates with increasing distance, as a complex function of energy transfer into the ground and the soil conditions through which the vibration is transmitted. Calculations of vibration attenuation followed standard FTA methods (Federal Transit Administration 2006).

No Action

Under the no action alternative, the Corps and CVFPB would not use Folsom State Prison land as a staging area, install a temporary traffic signal, widen the dirt access road, or construct the spillway basin drain. As a result, there would be no additional increase in noise or vibration from construction activities associated with the design refinements, including use of motorized equipment and haul trucks. The types and levels of noise and vibration would continue to be influenced by ongoing and future construction of other Folsom JFP features, roadway traffic, human activities, and other sources such as wind. Noise-sensitive receptors would be expected to be the same as under existing conditions.

Implement Design Refinements

Potential noise effects would occur from use of the Folsom State Prison staging area, installation of the temporary traffic signal, widening of the dirt access road, construction of the stilling basin drain, and the use of a batch plant at the Folsom State Prison staging area. Construction of the design refinements would occur between the hours of 7:00 a.m. to 6:00 p.m. Noise generated from project activities that were assessed include traffic and construction equipment operation. Sensitivity receptor locations include local residences and Folsom State Prison.

Construction noise sources and corresponding noise levels in the project area would greatly fluctuate depending on the purpose of construction and the particular type, number, and duration of use of various types of construction equipment involved. The effect of construction noise on nearby receptors depends upon how much noise is generated by each individual piece of equipment, the distance between construction activities and the nearest noise-sensitive receptors, the frequency, type, and duration of noise produced, and the ambient noise levels at the receptors.

Use Folsom State Prison Staging Area. This design refinement would require clearing and grubbing of the site, relocating the existing security fence, and widening the prison driveway by 12 feet. A small powered auger would be use to drill holes for the fence posts. Widening the driveway would involve small earth moving equipment, a backhoe, small paving machine, a rolling compactor, and a small water truck. Clearing and grubbing would be performed by small earth moving equipment. Fence installation and driveway widening would take up to five weeks.

However, the loudest equipment required for construction would be: auger drill, a compactor and a backhoe which are assumed to operate simultaneously as a worst case estimation. Based on these assumptions, and the typical noise emission levels listed in Table 5, the combined

equipment noise level for the traffic signal installation would be 90dB at 50 feet. At 400feet, the combined construction noise would be less than current ambient noise levels. Intervening structures and topography can act as noise barriers and reduce noise levels further. Noise sensitive land uses adjacent to the intersection are office buildings on Folsom State Prison land which are approximately 800 feet away. Due to the short term nature of construction, and since the work would not increase ambient noise levels or expose people to excessive noise levels; this impact would be less than significant. In addition, modification to the staging area would occur during City of Folsom exempt construction noise hours.

Install Temporary Traffic Signal. Installation of the traffic signal and pavement marking would last approximately two weeks. The traffic signal would be installed by drilling holes in the ground with a powered auger and re-stripping would be done by a thermoplastic striping truck. Based on these assumptions, and the typical noise emission levels listed in Table 5, the combined equipment noise level for the traffic signal installation would be 89dB at 50 feet. The construction equipment noise levels decrease at a rate of 6 dBA per doubling of the distance. Noise sensitive land uses adjacent to the intersection are office buildings on Folsom State Prison land which are approximately 800 feet away.

Construction activity at this site would generate maximum noise levels of about 65 dBA at the nearest office buildings, which is less than the ambient noise levels. Due to the short term nature of construction, and since the work would not increase ambient noise levels or expose people to excessive noise levels, this impact would be less than significant. In addition, installation of the temporary traffic signal would occur during City of Folsom exempt construction noise hours.

Widen Dirt Access Road. Construction of the dirt access road would last approximately four weeks. This design refinement would require the use of dump trucks, scraper, grader, rolling compactor and a water truck. However, the loudest pieces of equipment would be the dump trucks, grader, and a scraper which are assumed to operate simultaneously. Based on these assumptions, and the typical noise emission levels listed in Table 5, the combined equipment noise level for the traffic signal installation would be 91dB at 50 feet. Construction activity at this site would generate maximum noise levels of about 67 dBA at the nearest Folsom State Prison office buildings, which is less than the ambient noise levels. Construction of the dirt access road would be in the stilling basin which could act as a noise barrier and reduce noise levels further. Due to the short term nature of construction, and since the work would not increase ambient noise levels or expose people to excessive noise levels; this impact would be less than significant. In addition, widening of the dirt access road would occur during City of Folsom exempt construction noise hours.

Construct Stilling Basin Drain. Construction of the stilling basin drain would take approximately three weeks. This design refinement would require the use of a crane, backhoe, boring rig, vertical drill, hoe-ram, rock hauler, scraper, and concrete and delivery trucks. The loudest pieces of equipment would be the hoe-ram, scraper, and trucks which are assumed to operate simultaneously as a worst case estimation. Based on these assumptions, and the typical noise emission levels listed in Table 5, the combined equipment noise level for the traffic signal installation would be 91 dB at 50 feet. The Folsom State Prison offices are over 1,000 feet away

from the still basin drain location. At that distance, any noise associated with construction would be masked by ambient noise levels. Due to the short term nature of construction, and since the work would not increase ambient noise levels or expose people to excessive noise levels, this impact would be less than significant. In addition, construction of the stilling basin drain would occur during City of Folsom exempt construction noise hours.

Operate Batch Plant in Folsom State Prison Staging Area. A study completed February 2012 by HDR analyzed noise impacts if a batch plant is located at the Folsom State Prison staging area. Due to security requirements at Folsom State Prison, noise effects on noise-sensitive receptors at the prison were modeled at the north end and east ends of the prison. Noise levels due to the concrete batch plant operations were modeled at 47 dBA to 49 dBA at the closest sensitive receptor. The modeled noise levels during daytime construction activities would not exceed L_{50} noise standards. Therefore, noise impacts conducted within the construction noise exempt times would not be considered significant.

Batch plant operations have the potential to occur during non-exempt hours. Construction activities conducted between 6:00pm and 10:00pm would be required to meet the daytime noise standard of 50 dBA at L_{50}. For construction activities conducted between 10:00 pm and 7:00 am would need to meet the nighttime noise standard of 45 dBA at L_{50}. Due to the distance of Folsom Prison from the batch plant, the exterior noise standards would not be exceeded due to any construction activities conducted during these non-exempt construction noise hours. Therefore the City of Folsom noise requirements would be met and this impact would be considered less than significant.

Vibration

In addition to generating noise, traffic and heavy construction equipment can generate groundborne vibration. On-site construction equipment would include powered auger, excavator, back hoe, scrapers, rollers, graders, and various trucks. The most intense generation of ground vibration would be associated with the various trucks that generate levels of 0.076 in/sec PPV and 86 VdB at a distance of 25 ft. These levels would attenuate to 0.027 in/sec PPV and 77 VdB at a distance of 50 ft. Vibration sensitive receptors are beyond the 50 ft of the project area. Since the proposed action is short-term and temporary, and would not exceed Caltrans' or FTA's recommended standards, impacts related to vibrations would be less than significant.

Mitigation

Since there would be no significant effects on noise or vibration, no mitigation would be required. However, the following measures would be implemented by the contractor during construction activities in order to further reduce any potential noise effects:

- Appropriate level of sound attenuation would be used during construction to meet local ordinances. Potential sound attenuations measures that could be considered include, but not limited to, temporary sound barriers near the noise source or otherwise places between the sources of construction noise and noise-sensitive receptors, as appropriate.

- Residents and businesses near the project area would be provided with advance notices of project activities, schedule, anticipated traffic, and potential noise issues. The advance notice would describe the potential noise disruption and the steps that would be taken to minimize the noise.
- The construction contractor would monitor noise from construction activity. In the event that construction noise exceeds the City of Folsom's thresholds, corrective actions would be taken to reduce the noise levels or stop the activity.
- Heavy truck deliveries would be scheduled during exempt working hours and whenever possible, avoid deliveries during a single hour, especially during non-exempt hours. Haul trucks operating near noise sensitive receptor sites would be spaced apart to avoid noise effects from simultaneous operation.
- Engine brake (jake brake) use within city limits would be prohibited. Many noise complaints arise from heavy truck use of engine brakes to slow the truck down. Use of this type of braking can be avoided by proper speed control.
- The contractor would properly maintain and tune engines of all equipment and maintain properly functioning mufflers on all internal combustion engines to minimize noise levels.

3.3.4 Traffic

Traffic is defined for this analysis as the movement of vehicles from one place to another through a roadway network. The focus of this particular traffic and circulation analysis is the roadway network adjacent to the project area. This analysis addresses existing and proposed operations of the intersection at the Folsom Lake Crossing and the Folsom State Prison Driveway.

Regulatory Setting

Regulatory conditions for traffic analysis are generally dictated by overall transportation industry standards as published by the Federal Highway Authority and the U.S. Department of Transportation. These organizations serve as oversight agencies ensuring the respective regional, state and local jurisdictions follow the appropriate guidelines and parameters. For traffic analysis parameters, delays are generally considered the leading indicators of traffic flow and operations; the shorter the delay, the better the roadway segment flows and the intersection operates. Federal regulations do not dictate specific levels of operation or minimum delays however it is primarily the local jurisdiction's judgment, supported by the analyst's qualitative calculations that establish the best options.

Existing Conditions

The following section describes the corridor routes and functions, traffic volumes, traffic levels of service and bicycle routes along Folsom Lake Crossing that may be affected by the proposed project. Traffic along internal and external haul routes was analyzed in the 2010 EA/EIR and is not being evaluated in this document.

Functional Classification

Sacramento County and the City of Folsom use a roadway classification system for long-range planning and programming. Roadways are classified based on the linkages they provide and their function, both of which reflect their importance to the land use pattern, traveler, and general welfare. The functional classification system recognizes differences in roadway function and standards between urban/suburban areas and rural areas. The following paragraphs define the linkage and functions provided by each class.

- **Freeways:** Operated and maintained by Caltrans, these facilities are designed as high-volume, high-speed facilities for intercity and regional traffic. Access to these facilities is limited, and in some cases on- and off-ramps are metered during peak-hour periods to reduce congestion caused by merging cars and trucks.
- **Arterials:** Major arterials (four to six lanes) and minor arterials (four lanes)—are the principal network for through-traffic within a community and often between communities.
- **Collectors:** These two-lane facilities function as the main interior streets within neighborhoods and business areas. Collectors serve to connect these areas with higher classification roads (i.e., arterials, expressways, and freeways).
- **Local Streets:** These facilities are two-lane streets that provide local access and service. They include residential, commercial, industrial, and rural roads.

Level of Service

To evaluate a roadway's operational characteristics, a simple grading system is used that compares the traffic volume carried by a road with that road's design capacity. Roadways adjacent to the project area fall within the jurisdictions of Sacramento County and the City of Folsom. Each of these jurisdictions has adopted standards regarding the desired performance level of traffic conditions on the circulation system within its jurisdiction. A measure called "Level of Service" (LOS) is used to characterize traffic conditions. LOS is a measure of quality of operational conditions within a traffic stream based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience. Six LOS from A (best) to F (worst), define each type of transportation facility. Each LOS represents a range of operating conditions and the driver's perception of those conditions. These LOS thresholds, reflected at the local jurisdiction level through the County and City General Plans, define the minimum levels of acceptable traffic conditions.

Roadways

Folsom Lake Crossing is classified as an arterial roadway, and is the only road way adjacent to the project area. Table 6 lists the functional class, peak hour delay, and LOS at Folsom Lake Crossing.

Table 6. Folsom Lake Crossing Traffic Conditions

Sacramento County	Functional Class	AM Peak Hour Delay (sec/veh)	PM Peak Hour Delay (sec/veh)	LOS
Folsom Lake Crossing	Four-lane arterial, high access control	17.8[1]	19.7[1]	C

Note: Peak hour analysis assumed 2 percent trucks.
sec/veh – seconds per vehicle
* Delay reported for worst stop-controlled approach on Prison Driveway (northbound)

Peak-hour traffic volume data was collected to quantify the existing traffic conditions. Morning (7AM to 9 AM) and afternoon (4 PM to 6 PM) peak period turning movement counts were conducted at the intersection on March 29, 2012. The results of the existing conditions analysis indicated that the AM Peak hour delay was 17.8 seconds/vehicle with a LOS of C. The PM peak hour delay was 19.7 seconds/vehicle with an LOS of C. These conditions and results are typical for a developed area. Traffic analysis can be found in Appendix G.

Bicycles and Pedestrians

The City of Folsom has three types of bikeway classes:

- Class I Bikeway (bike path) provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross-flow minimized.
- Class II Bikeway (bike lane) provides a striped lane for one-way bike travel on a street highway. These lanes are for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited.
- Class III Bikeway (bike route) provides for shared use with pedestrian or motor vehicle traffic. Class III routes provide a right-of-way designated by signs or permanent markings and shared with pedestrians or motorists.

There is a Class I bike path and a Class II bike path adjacent to Folsom Lake Crossing.

Environmental Effects on Traffic

Methodology

Intersection operations were assessed using the Synchro software package, which is consistent with the Highway Capacity Manual (HMC) methodologies. The existing three-way intersection was analyzed using the HCM methodology for stop-controlled intersections (one-way stop). The proposed four-way signalized intersection during construction was analyzed using the HCM methodology for signalize intersections. The HCM delay is used to determine Level of Service (LOS), ranging from A (best) to F (worst), using the delay ranges shown in Table 7. Each LOS represents a range of operating conditions and the driver's perception of those conditions.

Table 7. HCM-Based Level of Service and Delay Ranges.

Average Delay (seconds/vehicle)		Level of Service (LOS)
Signalized Intersections	**Unsignalized Intersections**	
<10	<10	A
>10 – < 20	>10 – < 15	B
>20 – < 35	>15– < 25	C
>35 – <55	>25 – <35	D
>55 – <80	>35 – <50	E
>80	>50	F

For the existing plus construction traffic scenario, traffic volumes were developed by adding the estimated peak hour construction traffic volumes to existing condition peak hour volumes. The intersection was analyzed as a signalized intersection and the following assumptions were also used in the Synchro analysis:

- Saturation flow rate = 1,900 vehicles/hour/lane
- Control Type = Actuated-Uncoordinated
- Cycle length = 70 seconds
- Yellow time = 3.0 seconds
- All-red time = 1.0 second

Impacts associated with bicycles and pedestrians are discussed under Recreation in Section 3.3.7. On-site haul routes were not analyzed since they are not considered part of the public roadway network system. All material excavated would be hauled and disposed of on-site near a disposal area at MIAD. Any other vehicles using the site due to earthwork operations and heavy materials and equipment deliveries are expected to access the site via one of two approved and pre-determined haul routes, one from I-80 and one from State Route 50 and were analyzed in the 2010 EA/EIR. The construction contractor would be required to conform to the City's transportation restrictions and permit allowances at all times.

Significance Criteria

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

- Substantially increase traffic in relation to existing traffic load and capacity of the roadway system;
- Conflict with an applicable congestion management program, including but not limited to LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

- Substantially disrupt the flow and/or travel time of traffic; or
- Expose people to significant public safety hazards resulting from construction activities on or near the public road system.

The following screening criterion is recommended by the Institute of Transportation Engineers (ITE) (1989) for assessing the effects of construction projects that create temporary traffic increases. To account for the large percentage of heavy trucks associated with typical construction projects, ITE recommends a threshold level of 50 or more new peak-direction trips during the peak hour. Therefore, an alternative would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system, and result in a significant impact related to traffic, if it would result in 50 or more new truck trips during the a.m. peak hour or the p.m. peak hour.

No Action

Under the no action alternative, the Corps and CVFPB would not use Folsom State Prison land as a staging area, install a temporary traffic signal, widen the dirt access road, or construct the spillway basin drain. As a result, there would be no additional increase in traffic, changes in LOS, or effects on circulation from construction activities associated with the design refinements, including movement of equipment and haul trucks on local roadways. Traffic and circulation patterns would continue to be influenced by ongoing and future construction of other Folsom JFP features, as well as, local and regional roadway use. The roadway network would be expected to remain the same as under existing conditions.

Implement Design Refinements

Construction traffic to and from the Folsom State Prison staging area located on the south side of the Folsom Lake Crossing and prison driveway intersection would use the south leg of the intersection. Construction traffic to and from the construction area located north of the intersection would access the site via the north leg of the intersection. Intersection modifications are required to accommodate construction traffic turning in and out of both the north and south legs of the intersection. The existing unsignalized three-way intersection would be modified to temporarily signalize the modified four-way intersection (Figure 5). The bicycle trails on both sides of the street would also be controlled through the proposed traffic signal. Once construction is complete, the temporary traffic signal would be removed, and the intersection would be returned to the existing stop-controlled configuration.

Figure 5. Temporary Traffic Signal Location.

To determine the significance of the truck traffic on the load and capacity of the roadway, the number of peak-hour haul trips was estimated (volume of imported divided by haul truck capacity divided by number of days divided by number of construction hours). This number was compared with the ITE significance threshold of 50 additional peak-hour truck trips. Peak hour construction traffic and passenger cars expected to use the intersection during construction was estimated. Approximately 4 truck trips per peak-hours would be required. This number is well below the significance threshold of 50 additional peak-hour trips.

The City of Folsom has specified haul routes for the Folsom JFP, including the design refinements, which would provide ingress/egress to the project area from the east. Therefore, the westbound left turn and northbound right turn movements would experience higher volumes than the other movements in the peak hours. The percentage of trucks associated with the construction traffic is 12% in the AM peak hour and 8% in the PM peak hour. A detailed estimate of construction traffic by movement throughout the day (5 AM to 7 PM) is provided in Appendix G.

Although construction truck traffic would be slightly higher during the AM peak-hour than PM peak-hours, the proposed action would not exceed the quantitative threshold of 50 new truck trips during peak hour periods. Furthermore, the truck trips on any given access route would be short-term during construction. Therefore, construction-related traffic would not adversely affect conditions on Folsom Lake Crossing and this impact would be less than significant.

CH2M HILL assessed the impact on traffic by installing a traffic signal at Folsom Lake Crossing and the Folsom State Prison driveway. The results of the existing conditions and the existing plus construction traffic conditions are summarized in Table 8. The proposed signalized intersection would operate at LOS B during both peak hours with the addition of construction

Table 8. Existing Conditions with Peak Hour Construction Traffic Conditions.

	Existing Conditions				Existing Conditions with Construction Traffic			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	**Delay (sec/veh)**	**LOS**	**Delay (sec/veh)**	**LOS**	**Delay (sec/veh)**	**LOS**	**Delay (sec/veh)**	**LOS**
Folsom Lake Crossing and prison driveway	17.8[1]	C	19.7[1]	C	19.0	B	18.2	B

Note: Peak hour analysis assumed 2 percent trucks for existing conditions, and 2 percent plus the estimated truck traffic added during construction.
Sec/veh= seconds per vehicle
[1]delay reported for worse stop-controlled approach on Prison Driveway (northbound)

traffic and the installation of the temporary traffic signal. The control delay is projected to decrease during construction conditions due to the efficiency of the traffic signal operation.

As described above the proposed action would not exceed the 50 addition truck trips per peak-hour and would improve conditions with the implementation of the traffic signal. The potential effects of the proposed action would not disrupt flow or increase travel time, therefore, this impact is less than significant.

Slow moving trucks leaving and entering the staging and construction areas through the intersection could present a hazard to higher speed traffic on Folsom Lake Crossing. Installation of a traffic signal would stop traffic at Folsom Lake Crossing and allow the slower moving truck traffic to enter the intersection without causing a safety hazard; therefore, this impact would be less than significant. Construction vehicles would not block the inbound lane into the prison entrance, but the outbound lane would experience some traffic delays due to trucks exiting right onto Folsom Lake Crossing. However, in the event of an emergency, movement of construction traffic would cease to ensure that emergency vehicles would have unobstructed access in and out of the northern prison entrance. Effects on emergency vehicles using the northern prison entrance would be less than significant.

Mitigation

Since there would be no significant effects on traffic, no mitigation would be required. Implementation of the following measures by the contractor would help to ensure public safety during construction.

- Construction zones along residential roadways would be posted to notify approaching motorists of trucks entering and exiting roadside construction sites and to reduce speeds through the construction zone.
- Before and during construction, signs would be placed at construction areas to notify users of ongoing construction and limits of use.
- All speed limits, traffic laws, and transportation regulations would be obeyed during construction.

- On-street parking for construction workers would be prohibited.
- Off-street parking would be identified and provided to the construction workers and their vehicles and trucks. If possible, parking would be close enough to walk to the site. In any case, off-street parking would be outside of the project area.

3.3.5 Water Resources and Quality

This section describes the existing conditions of the water resources that could be affected and evaluates the effects of the proposed project on water resources and water quality in the project area.

Regulatory Setting

Federal and State law mandates a series of programs for the management of surface water quality. The Clean Water Act (33 U.S.C.§1251 et seq.) (CWA) is the Federal law that establishes the baseline that all state and local water quality laws must meet. The CWA also gives states the authority to adopt more stringent water quality programs to manage waters within the state. California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7), which created the State Water Resources Control Board (SWRCB), regulates the California waterways and establishes pollution prevention plans and penalties.

The SWRCB is divided into nine Regional Water Quality Control Boards (RWQCB). Each RWQCB is responsible for enforcing State water quality laws and objectives, establishing beneficial uses for each State waterway, and developing and updating basin plans that protect water quality based on beneficial use. The project area falls within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB), which authorizes discharges into State waterways under the National Pollutant Discharge Elimination System (NPDES) permitting process. NPDES permits apply to storm water, groundwater, and other wastewater discharges in the project area. Construction activities that disturb more than one acre of land would require a NPDES permit for potential storm water discharges and construction dewatering.

Permit types are further divided into categories based on the project activity in question. Pertinent to this project, two storm water permits are required: a construction storm water permit for general construction activities, and an industrial storm water permit for the concrete batch plant operation. The industrial storm water permit is required because the batch plant gives rise to the potential for other pollutant types (associated with concrete mix materials). In addition, a limited threat discharge permit for dewatering of groundwater is required. All permits require a notice of intent to be submitted prior to commencing any soil disturbing activities, groundwater dewatering, or concrete batch plant operation. The construction and industrial storm water permits require that a Storm Water Pollution Prevention Plan (SWPPP) is developed and implemented along with a monitoring and reporting plan. The limited threat discharge permit for groundwater dewatering operations also requires that a monitoring and reporting plan is developed and implemented.

Section 401 of the CWA regulates the water quality of bodies of water associated with any in-water work, or discharge of dredged or fill material. Section 401 is administered by

CVRWQCB. CVRWQCB either issues or denies water quality certifications based on whether or not the proposed in-water activity, discharge, or fill complies with all State and Federal laws, policies, and regulations governing the protection of the beneficial uses of the State's water resources.

Section 404 of the CWA regulates the discharge of dredged or fill material into wetlands and waters of the United States. Individual, general, and nationwide permits are issued by the Corps and EPA for activities that may these jurisdictional waters. Although the Corps does not issue itself permits for its own Civil Works projects, Corps regulations state that the Corps must apply the guidelines and substantive requirements of Section 404 to its activities. Such guidelines are known as the "Section 404(b)(1) Guidelines."

Existing Conditions

Surface Water

Folsom Dam and Reservoir is a multipurpose water project constructed by the Corps and operated by Reclamation. Folsom Reservoir has an average full-pool storage capacity of approximately 975,000 acre-feet.

The American River basin covers an area of approximately 2,100 square miles and has an average runoff of 2.7 million acre-feet per year. The American River is part of the Sacramento River watershed along with numerous other streams and rivers that drain the western slopes of the Sierra Nevada and Cascades. The North, Middle, and South Forks of the American River are the major tributaries draining into Folsom Reservoir. In general, these waters entering Folsom Reservoir from the upper American River watershed are of high quality. Monitoring of the region has found that the surface water quality rarely exceeds State of California water quality objectives for temperature, bacteria, dissolved oxygen, pH, oil and grease, total dissolved solids, and turbidity (Reclamation, 2004). The mainstem American River channel below Folsom Dam receives water from Folsom Lake after it passes through the dam.

Folsom Reservoir has numerous beneficial use designations as defined by the RWQCB. These beneficial uses include: municipal, domestic, and industrial water supply; irrigation; industrial power; water contact and non-contact recreation; warm and cold freshwater habitat, warm freshwater spawning habitat; and wildlife habitat (SAFCA 2003). Water quality in Folsom Reservoir is generally acceptable for the beneficial uses currently defined for these water bodies. However, taste and odor problems have occurred in municipal water supplies diverted from the lake in the past. These problems were attributed to blue-green algal blooms that occasionally occur in the reservoir as a result of elevated water temperatures.

Historically, water quality parameters for the Lower American River have typically been well within acceptable limits to achieve water quality objectives and beneficial uses (SAFCA 2003). Principal water quality parameters of concern for the river (pathogens, nutrients, total dissolved solids, total organic carbon, priority pollutants, and turbidity) are primarily affected by urban land use practices, runoff, and storm water discharges. The project area is likely less affected by these parameters due to the limited urban land use in the surrounding area. Generally,

the total organic carbon and total dissolved solids levels in the Lower American River do not exceed existing regulatory standards.

There are no sources of surface water such as streams, ponds, or springs in the project area. Sources of surface water near the project area include Folsom Reservoir, storm drains along Folsom Lake Crossing, and the American River.

Ground Water

Groundwater in the Sierra Nevada foothills are governed by a fractured rock aquifer, which may yield small quantities of water to wells (Corps 2006). The project area is dominated by such bedrock formations. There could be small areas of groundwater within the fractured formations. Alluvial materials in the river segment of the project area are minimal because of the hard rock formations that form and confine the American River streambed in the immediate area (Corps, 2006). Due to the potential for small areas of groundwater in fractured rock, as well as seepage inputs from Folsom Reservoir, construction of the control structure (i.e. excavation of the foundation) would include dewatering activities.

Jurisdictional Wetlands

Regulated or jurisdictional waters include all navigable waters, interstate waters, their tributaries, and adjacent wetlands. Any discharge of dredged or fill materials into these jurisdictional waters would be subject to compliance under CWA Sections 404 and 401 (33 U.S.C. §1251 et seq. [1972]).

A wetlands survey was conducted by USFWS for Reclamation and the Corps for the 2007 FEIS/EIR. All required permits for construction of other Folsom JFP features have been obtained by Reclamation. No wetlands exist in the Folsom State Prison staging area or project footprint for construction of the temporary traffic signal, widening of the dirt access road, and installation of the stilling basin drain. As a result, no additional permit under Sections 404 and 401 of the CWA would be required.

Environmental Effects

This section evaluates the effects of the proposed project on water resources. Qualitative effects on water quality were based on construction practices and materials, location, and duration of construction. Standard pollution prevention measures including erosion and sediment control measures, proper control of non-storm water discharges, and hazardous spill prevention and response measures would be implemented as part of the project design.

Significance Criteria

The proposed action would significantly affect water resources if it would result in any of the following:

- Violate any 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 surface water or groundwater quality such that it would substantially degrade water quality to the detriment of beneficial uses; or
- Substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off the site, resulting in flooding on or off the site, or exceed the capacity of stormwater drainage systems.

No Action

Under the no action alternative, the Corps and CVFPB would not use Folsom State Prison land as a staging area, install a temporary traffic signal, widen the dirt access road, or construct the spillway basin drain. As a result, there would be no additional effects on water resources or quality from construction activities associated with the design refinements, including movement of disturbed soil and accidental spills into surface drainage. Water quality would continue to be influenced by ongoing and future construction of other Folsom JFP features, as well as, urban, agriculture, and stormwater runoff.

Implement Design Refinements

The project would include site preparation of the Folsom State Prison staging area and installation of a concrete batch plant, installing a temporary traffic signal, widening a dirt access road, and constructing a stilling basin drain. Ground disturbing construction activities would include clearing and grubbing, and excavation. Approximately 12 acres of land would be exposed during construction of the proposed action. Exposed soil could potentially erode during rain events, causing increased turbidity in local waterways. Adjacent waterways that could potentially be affected include the outflow channel below Folsom Dam, and the American River.

Construction activities have the potential to temporarily impair water quality if disturbed and eroded soil, petroleum products, or construction-related wastes (cement and solvents) 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, and introduce compounds that are toxic to aquatic organisms. Accidental spills of construction-related substances such as oils and fuels can contaminate both surface water and groundwater.

In order to maintain existing water quality conditions and beneficial uses, the contractor would be required to obtain NPDES permits. A NPDES Construction Storm Water Permit from the CVRWQCB would be required since the project would disturb more than 1 acre of land. The Construction Storm Water Permit pertains to the prevention of increased turbidity of adjacent waterways from site erosion and sedimentation. The contractor would be required to design and implement a SWPPP prior to initiating construction activities, and to implement standard BMPs.

Dust control measures would be implemented to avoid dust and soil from entering the river or other drainages as a result of construction activities. Precautions would be followed to avoid erosion and movement of soils into drainage systems. Implementation of BMPs and NPDES permit requirements would reduce water quality impacts from construction to less than significant.

The NPDES Industrial Storm Water Permit requires that a SWPPP is designed and implemented specific to the concrete batch plant operation. Debris, oil and fuel, or concrete mix material spills pertaining to the concrete batch plant site could adversely affect water quality. The industrial storm water permit addresses potential pollution inputs due to storm water runoff that are associated with all activities at the concrete batch plant. The contractor would be required to cover and control all material stock piles to prevent suspension of dust or concrete mix material due to wind. The contractor would also be required to coordinate the handling of all wastewaters generated from concrete production with the CVRWQCB. For the concrete batch plant installed at the Folsom State Prison staging area, the implementation of BMPs and NPDES permit requirements would reduce water quality impacts to less than significant.

There is also a potential for fugitive dust and construction runoff to enter waterways due to excavation, equipment use, and movement of trucks in the project area and along the haul routes. Frequent watering of haul routes, proper covering and control of material stock piles (e.g., dirt and aggregate) would help to prevent such pollution impacts, therefore; impacts on water quality due to fugitive dust would be less than significant.

The use of Folsom State Prison as a staging area, the traffic signal, and dirt access road are temporary features and would not contribute to long-term changes in the rate or amount of surface runoff that enters local drainages or municipal storm drains. The Folsom State Prison staging area entrance would be widened and stabilized at the point of ingress/egress to minimize the tracking of mud and dirt onto the road way. The existing storm drain pipe under the proposed dirt access road location would be replaced with stronger RCP pipe to support the weight of the new haul road. The location of the storm drain pipe would remain the same and not alter drainage patterns or exceed the capacity of stormwater drainage infrastructure.

Access to the stilling basin drain site would be via the internal haul road. To avoid effects on water quality, the drain would be constructed landside by excavating the open cut trench while leaving in a plug at the river end. Once the trench is completed, the plug would then be removed. The stilling basin drain would release water collected in the stilling basin after an event. The outlet would be stabilized to prevent scour and minimize the potential for erosion. Although the drain would slightly alter water flow patterns, the area's overall drainage patterns would remain the same. The stilling basin drain would not result in substantial erosion or siltation. The stilling basin drain could contribute a small amount of sediment into the outflow channel. However, any sediment would settle out prior to entering Lake Natoma or the Lower American River and would not increase turbidity or temperatures in the Lower American River. As a result, impacts on water quality would be less than significant.

Mitigation

Since there would be no significant effects on water resources or quality, no mitigation would be required. However, the following standard BMPs would be implemented to avoid or minimize any effects of construction on surface waters. Additional BMPs could be identified as part of the NPDES permits discussed above. Implementation of these BMPs would ensure that effects on water quality would remain at less-than-significant levels. Standard BMPs include:

- Appropriate erosion control measures would be incorporated into the SWPPP in order to prevent sediment from entering waterways. Examples include, but are not limited to: straw bales/wattles, erosion blankets, silt fencing, mulching, re-vegetation, and temporary covers. An appropriately designed and effective sediment capture and stilling basin must be implemented to capture and control sediments carried by site runoff. Sediment and erosion control measures must be maintained during construction at all times. Inspect control measures before, during, and after a rain event.
- Implement appropriate measures to prevent any debris, soil, rock, or other materials/products associated with construction activities from entering waterways. The contractor would use a water truck or other appropriate measures to control fugitive dust on haul roads, construction areas, and stockpiles.
- A concrete and fuel spill management plan would be developed for the project.
- Provide secondary containment for storage of any fuel, oil or other liquid and properly dispose of such liquid wastes.
- Fuel and maintain vehicles in specified staging areas only, which are designed to capture potential spills. These areas cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Fuels and hazardous materials would not be stored on site. Any spills of hazardous material would be cleaned up immediately. Spills would be reported in construction compliance reports.
- Inspect and maintain vehicles and equipment to prevent dripping of oil, lubricants, or any other fluids.
- Schedule construction to avoid as much of the wet season as possible. Ground disturbance activities are expected to begin in the summer of 2013. If rains are forecast during the construction period, erosion control measures would be implemented.
- Train construction personnel in storm water pollution prevention practices.
- Re-vegetate and restore areas cleared by construction in a timely manner to control erosion.
- Implementation of any additional requirements as mandated by either the construction storm water permit, industrial storm water permit, or the limited threat discharge permit would further reduce any potential adverse affects to adjacent waterways.

In addition, the measures in the Spill Prevention and Response Plan and the Erosion and Sediment Control Plan would prevent any significant adverse effects to water quality in the project

area. The inclusion of the above mitigation measures and complete compliance with all water quality permits, would reduce any water resources and quality impacts to a less than significance.

3.3.6 Fisheries

Regulatory Setting

Federal

Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The Magnuson-Stevens Act establishes a management system for national marine and estuarine fishery resources. This legislation requires that all Federal agencies consult with the National Marine Fisheries Service (NMFS) regarding all actions or proposed action permitted, funded, or undertaken that may adversely affect "essential fish habitat". Essential fish habitat is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The legislation states that migratory routes to and from anadromous fish spawning grounds are considered essential fish habitat. The phrase "adversely affect" refers to the creation of any impact that reduces the quality or quality of essential fish habitat.

Fish and Wildlife Coordination Act (FWCA). The FWCA (16 USC 661 et seq.) provides that fish and wildlife resources receive equal consideration with other features throughout the planning process of water resources development projects. The FWCA requires Federal agencies to consult with Federal and State fish and wildlife resource agencies before undertaking or approving water projects that control or modify surface water. The purpose of this consultation is to ensure that wildlife concerns receive equal consideration during water resource development projects and are coordinated with the features of these projects. The consultation is intended to promote the conservation of fish and wildlife resources by preventing their loss or damage and to provide for the development and improvement of fish and wildlife resources in connection with water projects. Federal agencies undertaking water projects are required to fully consider recommendations made by Federal and State fish and wildlife resource agencies in project reports and to include measures to reduce impacts on fish and wildlife in project plans.

Existing Conditions

Lake Natoma, 7 miles downstream from Folsom Dam, was formed by the construction of Nimbus Dam in 1955, and serves as a regulating afterbay for Folsom Reservoir. The upstream portion of Lake Natoma includes the highly bedrock-confined outflow channel below Folsom Dam. Lake Natoma has a surface area of approximately 500 acres. Lake Natoma supports many of the same fisheries found in Folsom Reservoir (e.g. centrarchids and ictalurids). There is also an active rainbow trout stocking program conducted by CDFG. A record of the current fish community known to be present within the outflow channel below Folsom Dam, and Lake Natoma was conducted by the Corps. This inventory was carried out using internet and literature searches, and correspondence with CDFG biologists.

There are approximately 28 fish species that have the potential to occur downstream of Folsom Dam within either the outflow channel or Lake Natoma. Of these species, 24 are non-

native and four are native. The four native species known to occur include Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), rainbow trout (*Oncorhynchus mykiss*), and chinook salmon (*Oncorhynchus tshawytsha*). The latter two species from the salmonid family are important cold-water game species that are managed and maintained by CDFG's active hatchery-based stocking program. As the chinook salmon stocking program is relatively new, rainbow trout most likely comprise the highest numbers of all native species. The most abundant non-native species originate from the centrarchid family, and include various bass and sunfish.

Environmental Effects

Significant Criteria

An impact on fisheries would be considered to be significant if it would result in any of the following:

- Substantially reduce or curtail game fish populations for recreational fishing, reducing the availability or quality of existing angler opportunities;
- Substantially change the diversity or numbers of any; aquatic community or species or interfere with the survival, growth, or reproduction, of affected populations;
- Cause substantial deterioration or adverse alteration of existing fish habitat. Substantial is qualified as long term effects that can be verified by repeated measurement or includes habitat designated as, "Critical Habitat" by NFMS;
- Have a substantial adverse effect, either directly or through habitat modifications on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the CDFG, NMFS, or USFWS.

No Action

Under the no action alternative, the Corps and CVFPB would not use Folsom State Prison land as a staging area, install a temporary traffic signal, widen the dirt access road, or construct the spillway basin drain. As a result, there would be no additional effects on fisheries from construction activities associated with the design refinements, including movement of disturbed soil and accidental spills into the outflow channel. Fisheries would continue to be influenced by ongoing and future construction of other Folsom JFP features, as well as, urban, agriculture, and stormwater runoff. The fisheries population in Lake Natoma (including the outflow channel) would be the same as described in the existing conditions.

Implement Design Refinements

Use of Folsom State Prison land for staging area, installation of the temporary traffic signal, and widening of the dirt access road, would not affect fisheries. Construction of the spillway drain could potentially affect fish species inhabiting the outflow channel, or Lake Natoma through sediment collecting in the stilling basin and entering the river.

Installation of the stilling basin drain would not alter the rainbow trout stocking program or recreational fishing opportunities. Implementation of BMPs would reduce impacts associated with the construction of the drain and not adversely affect aquatic habitat. Therefore, impacts associated with the stilling basin drain on recreational fishing would be less than significant.

The majority of fish species present in the outflow channel and Lake Natoma are resilient, non-native species that have a high tolerance to elevated levels of fine sediment and/or poor water quality conditions in general. Sediment can reach the stilling basin through local runoff coming down to the area or through the open gates of the control structure during a flood release. Post construction runoff would be relatively clear since the contributory surfaces would either be non-erodible or grassed. Therefore, sediment from runoff entering the outflow channel from would be minimal.

During a flood release, the vast proportion of sediment that would enter the stilling basin and be carried into the river would be from the extremely turbulent and high energy waters resulting from the opened gates of the control structure. Sediment released through the control gates would depend upon how much material would be in suspension during the released water as it passes through the approach channel. The Folsom Dam Water Control Manual Update will evaluate the resulting impacts to fisheries following a flood release. By comparison, the amount of suspended material entering the river through the small, low head stilling basin drain within 24 hours a flood release would be miniscule. Therefore, potential effects on aquatic species would be less than significant.

Implementation of BMPs would reduce impacts associated with the construction of the stilling basin drain. In addition, a flap gate would be installed on the outlet to the river to prohibit fish swimming into the stilling basin and getting trapped. Therefore, impacts associated with the stilling basin drain would be less than significant.

The American River is a migratory pathway for listed anadromous salmon and steelhead, its habitat is considered essential fish habitat (EFH) under the Magnuson-Stevens Act. Nimbus Dam is located 7 miles downstream of the project site impedes all upstream migrations (i.e., listed salmon and steelhead to not occur in the project vicinity). Therefore, no effect to Federally listed anadromous salmonid species, steelhead, or their associated EFH would occur within the project area. The stilling basin drain would not modify habitats of listed species and impacts would be less than significant.

Mitigation

The potential adverse effects on fisheries in the project area resulting from the design refinements would be indirect, resulting from short-term water quality degradation. As such, all pertinent mitigation measures for fisheries are the same as those listed for water quality and resources in Section 3.3.4. In summary, compliance with the various water quality permits needed for this project, including implementation of the SWPPP and its associated BMPs, would reduce potential, indirect effects to less-than-significant.

3.3.7 Recreation

Regulatory Setting

Public recreation facilities in the project vicinity are provided by the County and area cities, consistent with their land use planning policies.

Existing Conditions

The project area is located adjacent to the Folsom Lake State Recreation Area. This area includes Folsom Lake and the surrounding landscapes that provide a variety of land- and water-based activities such as camping, hiking, marinas, bicycling, and boating. Recreational areas surrounding the reservoir are located a significant distance away from the project area and would not be affected by the proposed project.

On the north and south side of Folsom Lake Crossing, there is a Class II Bike Trail along the edges of pavement. On the north side of Folsom Lake Crossing, there is also a Class I Bike Trail approximately 4 feet north of the Class II trail. Existing pedestrian and bike volumes were collected March 29th, 2012 and results are provided in the Appendix G. The counts showed zero pedestrian volume during the AM peak hours (7am to 9am) and PM peak hours (4pm to 6pm). Bicycle traffic was observed in both peak times. During the AM peak hours, five bikes were observed traveling westbound. During PM peak hours, 22 bikes were observed traveling eastbound and seven bikes were observed traveling westbound.

Environmental Effects

Significant Criteria

An impact was considered to be significant if it would result in any of the following:

- Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of facilities would occur or be accelerated.
- Substantially reduced access to existing recreational facilities; substantial reduction in availability of existing recreational facilities or uses.

No Action

Under the no action alternative, the Corps and CVFPB would not use Folsom State Prison land as a staging area, install a temporary traffic signal, widen the dirt access road, or construct the spillway basin drain. As a result, there would be no additional increase in effects on recreation from construction activities associated with the design refinements, including distribution in access or use of the bike path. The types of recreational activities and levels of recreation use would continue to be influenced by ongoing and future construction of other Folsom JFP features, timing of the year, and weather conditions. Recreational activities around Folsom Reservoir and use of the bike path would be expected to be the same as under existing conditions.

Implement Design Refinements

Installation of the temporary traffic signal and widening of an existing dirt access road would restrict recreational access along the bike trail. The access road would be used as a haul route for heavy trucks, resulting in increased traffic at the intersection.

The proposed action would install a temporary traffic signal at the intersection of the prison site access road and Folsom Lake Crossing. The proposed signal would be designed with pedestrian/ bicycle phasing (push-button actuated) to accommodate the bike and pedestrian activity safely through the intersection. The proposed action would not restrict pedestrian/ bicycle traffic and would be consistent with other intersections along the bike trail. The proposed action would not substantially reduce or restrict access to recreational facilities; therefore, effects on recreational opportunities would be less than significant.

Widening of the existing dirt access road would, for approximately 1 week, require limited access to the bike trail for approximately 70 feet at the north intersection of Folsom Lake Crossing. A temporary path would be constructed to allow recreationalist to safely pass the work zone.

Increased use of other facilities that absorb users temporarily displaced from construction sites would not result in increased “wear and tear” effects. In addition, the effects would be temporary and short-term and would likely be spread among several area facilities. In light of these factors, impacts related to the potential for accelerated physical degradation of other recreational facilities in the project area are expected to be less than significant.

Mitigation

In order to reduce impacts to recreation, detour routes would be clearly marked, and ADA-compliant temporary ramps would be constructed as needed. To ensure public safety, warning signs and signs restricting access would be posted before and during construction, as necessary. Detour routes would be clearly marked, and fences erected in order to prevent access to the project area. Public outreach would be conducted through mailings, posting signs, coordination with interested groups, and meetings, if necessary, in order to provide information regarding changes to recreational access.

Any effects to recreation would be short-term, and the proposed mitigation measures would reduce impacts to less than significant. Therefore, no further mitigation measures would be required.

3.3.8 Cultural Resources

Regulatory Setting

Federal

Prior to implementation of an undertaking with the potential to cause effects to historic properties, the project must be in compliance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800). Section 106 requires Federal agencies, or those they fund or permit, to consider the effects of their actions on the properties that may be eligible for listing or are listed in the National Register of Historic Places (NRHP). To determine whether an undertaking could affect NRHP-eligible or listed properties, cultural resources (including archeological, historical, and traditional cultural properties) must be inventoried and evaluated for listing in the NRHP. The term "historic property" specifically refers to a cultural resource that has been found eligible for listing in, or is listed in, the NRHP.

State

CEQA also requires that for public or private projects financed or approved by public agencies, the effects of the projects on historical resources and unique archeological resources must be assessed. Historical resources are defined as buildings, sites, structures, objects, or districts that have been determined to be eligible for listing in the California Register of Historical Resources. Properties listed in the NRHP are automatically eligible for listing in the California Register.

Existing Conditions

A records and literature search was conducted at the North Central Information Center located at California State University, Sacramento in 2006 and 2008 for the Folsom Bridge EIS/EIR, which included the Folsom Prison Staging Area, and on March 13, 2009, for the Folsom JFP 2010 EA/EIR. The records searches indicated that the entire area of potential effects (APE) has been previously surveyed for cultural resources and that there are no cultural resources within the APE; however, there is one known historic property located near but outside the APE. Folsom Dam, which includes Folsom Dam, its associated Left and Right Wing Dams, and Dikes, was found eligible for listing in the National Register of Historic Places (NRHP) in 2006. Corps archeology staff conducted archeological site visits of the current APE for the Folsom Bridge EIS/EIR in 2006 and 2008. Previous archeological surveys of the APE indicate that there are no known historic properties within the APE. Since those surveys completed in 2006 and 2008 the area has been subjected to disturbance from construction of the Folsom State Prison Staging Area as part of the Folsom Bridge construction in 2007 and the construction of the stilling basin and chute from the 2010 EA/EIR. The APE for the proposed design refinements is entirely within the APE for the 2006 Folsom Bridge EIS/EIR and the 2010 EA/EIR. The proposed design refinements would all occur within previously disturbed areas, through manmade features created in the last 5 years, or through solid rock.

Native American Coordination

For the 2006 Folsom Bridge EIS/EIR and the 2010 EA/EIR when there was a potential effect to historic properties letters were sent to the Shingle Springs Band of Miwok Indians and the United Auburn Indian Community of the Auburn Rancheria. Because there would be no disturbance to native soil or areas not previously disturbed, and because disturbance is limited to recently created manmade features or through solid rock, it was determined that there is no potential to cause effects to historic properties. Due to the type of activity and the location, it was determined that consultation with Native Americans was not required for this project. Additionally, for other projects occurring in and around this area, a representative of the Shingle Springs Band of Miwok Indians contacted us in March 2009 to inform us that they were unaware of any traditional cultural properties or sacred sites within or near the project area.

Environmental Effects

Significance Criteria

Any adverse effects on cultural resources that are listed or eligible for listing in the NRHP are considered to be significant. Effects are considered to be adverse if they alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource of the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.

No Action

Under the no action alternative, the Corps and CVFPB would not use Folsom State Prison land as a staging area, install a temporary traffic signal, widen the dirt access road, or construct the spillway basin drain. As a result, there would be no additional increase in effects on cultural resources from construction activities associated with the design refinements. This alternative would have no effect on existing cultural resources or historic properties in or near the project areas.

Implement Design Refinements

The proposed action would have no adverse effect on any cultural resources that are listed or eligible for listing in the NRHP. The design refinements are within the APE and description of the activities for previous phases of the Folsom JFP and the Folsom Bridge Project. The construction of the temporary traffic signal would occur on an existing roadway and through soil disturbed within the last 5 years for the construction of the Folsom Lake Crossing and Folsom Bridge. The dirt access road widening would occur in an area previously disturbed for construction of the spillway chute, and the stilling basin drain would be constructed in previously disturbed areas or areas of solid rock. A portion of the APE, specifically the Folsom State Prison staging area, is on fill placed on that location in the last 5 years during construction for the Folsom Bridge Project.

Folsom Dam and Dikes, resources eligible for listing in the NRHP, are located outside the APE, and the proposed design refinements would not alter directly or indirectly any of the characteristics that make the resources eligible for listing in the NRHP.

The implementing regulations of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), 36 CFR § 800.3(a)(1), *No potential to cause effects*, allow a federal agency to determine "If the undertaking is the type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under Section 106 of this part." Due to the previous disturbance from construction within the APE and because no activities described for the proposed design refinements would occur in undisturbed ground, the project would not have the potential to cause effects to historic properties. A Memorandum for Record documenting this determination is included in Appendix H.

Mitigation

For the proposed action there would be no potential to cause effects to cultural resources and no mitigation would be required. Should any potentially significant cultural resources be discovered during construction, all ground-disturbing activities would cease in the area of the discovery, and take action as required by 36 CFR 800.13(b), "discoveries without prior planning". Data recovery or other mitigation measures could be necessary to mitigate adverse effects to significant properties. Implementation of mitigations measures, which could include avoidance and recordation or evaluation of a previously unidentified historic property by a qualified archeologist, would reduce these effects to less than significance.

4.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS

4.1 Cumulative Effects

4.1.1 Introduction

NEPA and CEQA require the consideration of cumulative effects of the proposed project combined with the effects of other projects in and around the project vicinity. The discussion identifies resource areas in which the impacts of the proposed action, when viewed together with other projects, could contribute to an impact that is "cumulatively considerable" within the meaning of NEPA and CEQA.

Regulatory Background

The NEPA regulations and CEQA Guidelines require that an EA/EIR discuss project effects that, when combined with the effects of other projects, result in significant cumulative effects. Cumulative effects are defined as "The effect on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor of collectively significant actions taken over a period of time" (CFR 40 Part 1508.7).

Cumulative effects under the CEQA Guidelines are defined as "two or more individual impacts which, when considered together, compound or increase other environmental impacts" (Section 15355). The Guidelines require that an EIR discuss cumulative effects "when they are significant" (Section 15130). The CEQA Guidelines also state: "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to the other closely related past, present, and reasonable foreseeable probable future projects" (Section 15355).

Methodology

Cumulative effects are evaluated by identifying projects in and around the Folsom Dam vicinity that could have significant adverse or beneficial environmental effects. These significant effects are compared with the potential adverse and beneficial effects of the proposed alternative to determine the types and significance of potential cumulative effects. The timeframe for analysis of cumulative impacts is from fall of 2012 when the project is anticipated to begin through the completion of the Folsom JFP in 2017. Specific site conditions would determine the amount of work that could take place during each construction season.

4.1.2 Past, Present, and Reasonably Foreseeable Future Projects

Related Projects

The identified projects in the vicinity of the project area are briefly described below. Each of the identified projects is required to evaluate the effects of the proposed actions on environmental resources in their respective areas. Accordingly, mitigation or mitigation measures must be developed to avoid or reduce any adverse effects to less than significant based on Federal and local agency criteria. Effects that cannot be avoided or reduced to less than significant are likely to contribute to cumulative effects in the area. Timing and sequencing of construction activities for each of the projects are not yet determined and would affect the findings of the cumulative effects analysis.

<u>Folsom Joint Federal Project</u>

Due to the fact that the Folsom JFP is a multi-phased, accelerated effort, overlapping construction efforts would occur adjacent and in the vicinity of the project area throughout the course of construction of the approach channel. The 2007 FEIS/EIR evaluated cumulative effects from the Folsom JFP construction activities; the analysis in this EA/EIR is supplementing the previous cumulative effects analysis.

Mormon Island Auxiliary Dam Modification Project. Construction is proposed for summer 2010 to summer 2014. Reclamation released the Draft EIS/EIR for the MIAD Modification Project in December 2009. 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. All alternatives address methods to excavate and replace the MIAD foundation, place an overlay on the

downstream side, and construct drains and filters; the alternatives differ only in their method of excavation. In addition, all four action alternatives in the draft supplemental EIS/EIR include habitat mitigation proposed for up to 80 acres at Mississippi Bar on the shore of Lake Natoma to address impacts from the Folsom JFP.

Control Structure, Chute, and Stilling Basin. Construction is proposed for spring 2011 to fall 2017. Phase III of the Folsom JFP consists of construction of the auxiliary spillway control structure. This effort is currently under construction by the Corps and will be completed in approximately fall 2014. Concrete lining of the spillway chute and stilling basin will be conducted by the Corps as the final phase of the Folsom JFP. These actions will be 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 Corps' 2010 EA/EIR (Corps 2010).

Approach Channel. Construction is proposed for spring 2013 to fall 2017. The approach channel project is the final construction activity of Phase IV of the Folsom JFP. The primary and permanent structures consist of the 1,100 foot long excavated approach channel and spur dike. Additional existing sites and facilities that would be used 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 are connected by an internal project haul road. The draft supplemental EIS/EIR is scheduled to be available for public review in summer 2012.

Other Local Projects

Johnny Cash Folsom Prison Blues (Folsom Lake) Trail: Historic Truss Bridge to Green Valley Road Segment

This project is planned to provide approximately 2.5 miles of Class I bike trail from the Historic Truss Bridge to Green Valley Road. A majority of the trail alignment will be within the Folsom Prison property. The project is broken into three major segments consisting of:

- Phase 1 - Folsom Lake Crossing bike/pedestrian overcrossing to the Hancock Drive intersection (currently under construction).
- Phase 2 - Folsom Prison entry road to Rodeo Park (existing trail end).
- Phase 3 - Hancock Drive intersection to the Folsom Prison entry road.
- Phase 4 - Folsom Lake Crossing bike/pedestrian overcrossing to the El Dorado County line.

Incorporation of a separated grade crossing at the new Folsom Lake Crossing/East Natoma Street re-alignment was included as part of the construction of the Folsom Bridge. Construction would begin in 2012.

Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual Update is being completed in conjunction with the Folsom JFP by the Corps, Reclamation, CVFPB, and SAFCA. The Folsom Dam Water Control

Manual Update is developing, evaluating, and recommending changes to the flood control operations at Folsom Dam to further reduce flood risks to the Sacramento area. Operational changes may be necessary to fully realize the flood risk reduction benefits of the following:

- The additional operational capabilities created by the auxiliary spillway;
- The increased downstream conveyance capabilities anticipated to be provided by the American River Common Features Project (Common Features);
- The increased flood storage capacity anticipated to be provided by completion of the Folsom Dam Raise Project (Dam Raise); and
- The use of improved forecasts from the National Weather Service.

Further, the Folsom Dam Water Control Manual Update is evaluating options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study will result in a Corps decision document and will be followed by a water control manual implementing the recommendations of the Study. The initial water control manual will implement the recommendations of the study, but will not include the capabilities to be provided by the Dam Raise and additional Common Features project improvements until these projects have been completed.

Folsom Dam Raise

The Folsom Dam Raise project will follow the Folsom JFP. This project includes raising the Folsom Dam, Mormon Island Auxiliary Dam and the auxiliary dikes around Folsom Reservoir by 3.5 feet; replacing the three emergency spillway gates; and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). The ecosystem restoration projects have been prioritized at different levels and separated, with automation of the temperature control shutters to be the next completed feature in 2017 and the two downstream restoration sites to be completed in approximately 2016-2017. For the dam raise portion of the project, the design should begin in 2015 and be completed in Fiscal Year 2016, with construction following in phases through 2017 and 2018.

Widening of Green Valley Road

Green Valley Road runs between both the City of Folsom and El Dorado County. Both agencies have proposed projects to widen Green Valley Road from two to four lanes. The El Dorado County Green Valley Road widening project from the county line to Francisco Drive was constructed prior to 2009, with environmental mitigation to be completed from 2009 to 2012 (El Dorado County 2010). The City of Folsom plans to widen Green Valley Road; however, the ongoing construction of the Bureau's MIAD Modification project limits their ability to conduct the road widening project. There is currently no environmental compliance documentation and no construction schedule for the project within the City of Folsom. The project could take four years to construct.

El Dorado 50 – HOV lanes

California Department of Transportation will construct bus-carpool (HOV) lanes in the eastbound and westbound directions by widening U.S. Highway 50 from approximately El Dorado Hills Boulevard to just west of Greenstone Road. The project will ultimately extend the current HOV lane system to provide approximately 23 continuous miles of eastbound and westbound HOV lanes between Sacramento and El Dorado counties. The project also includes bridge modifications, lighting improvements and new asphalt overlay. The project will be constructed in three phases: Phase 1 will extend the current HOV lanes from their existing terminus west of El Dorado Hills Boulevard to west of Bass Lake Road. Construction started in Fall 2008 with completion scheduled for Fall 2011. Phase 2 will extend the lanes from west of Bass Lake Road to approximately Ponderosa Road. Construction is currently targeted to begin in Summer 2013 with completion in Fall 2015. Phase 3, currently on hold pending determination of funding source, will extend the lanes from Ponderosa Road to Greenstone Road (Caltrans 2012).

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. Construction was completed in 2010. Phase 2 of the Hazel Avenue Projects includes widening Hazel Avenue from four to six lanes from Curragh Downs Drive to Madison Avenue. This phase will also include traffic signal modifications 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 is currently targeted to begin in 2012 with completion in 2013.

California Health Care Facility

The California Health Care Facility has been authorized by the State of California to construct a 1,400-bed health care facility on Folsom Prison property to serve Folsom Prison. This project is estimated to begin construction in 2013.

4.1.3 Cumulative Effects

Analysis of Potential Cumulative Effects

Chapter 3 of this EA/EIR identifies the affected environment and includes detailed impact analyses and mitigation measures of the proposed action with respect to air quality, climate change, noise and vibration, traffic and circulation, water resources and quality, fisheries, recreation, and cultural resources. The results are assessed in the following cumulative effects analysis in terms of their potential to combine with environmental effects of the projects listed previously. The analysis focuses on the potential for the impacts identified in Chapter 3 to make a considerable contribution to significant adverse cumulative effects.

The discussion of cumulative impacts focuses on the cumulative impact to which these other projects contribute, rather than the attributes of other projects which do not contribute to the cumulative impact. For example, if another project contributes only to a cumulative effect on natural resources, its effects on public services need not be discussed as part of the cumulative impact analysis.

Air Quality

The geographic scope of potential cumulative air quality impacts encompasses the immediate project vicinity for particulates and the Sacramento Valley Air Basin (SVAB) for criteria pollutants. The proposed action could overlap with ongoing Folsom JFP projects and roadway improvement projects that are in and around the vicinity of the Folsom Facility.

As a result of past, present, and future development projects within the SMAQMD jurisdiction, and the current nonattainment status of the SVAB for ozone and particulate matter, a cumulative, and thereby significant, air quality impact exists. Consequently, the SMAQMD's approach to thresholds of significance is relevant to whether a project's individual emissions would result in a cumulatively considerable adverse contribution to the SVAB's existing air quality conditions. If a project's emissions would be less than these levels, the project would not be expected to result in a cumulatively considerable contribution to the significant cumulative impact.

Emissions from the proposed action would be entirely caused by construction activities, which are short-term and temporary. As explained in section 3.3.1, Air Quality, proposed action would not produce emissions that are greater than the GCR *de minimus* values for criteria pollutants. Although the proposed action would generate some temporary air emissions because of combustion emissions and dust emissions, these emissions do not exceed the thresholds of significance for the individual project and therefore, are not to be a "cumulatively considerable adverse contribution to SVAB."

The proposed action would not contribute significant emissions to the air basin. The project's emissions would be temporary and not generate any long-term air pollutants, not exceed applicable project level thresholds of significant, and would not substantially contribute to AAQS. In addition the proposed action would incorporate basic construction emissions control practices.

Climate Change

The geographic scope of potential cumulative climate change impacts encompasses the Sacramento Valley Air Basin (SVAB) for GHSs. The proposed action could overlap with ongoing Folsom JFP projects, California Health Care Facility, and roadway improvement projects that are in and around the vicinity of the Folsom Facility.

It is unlikely that any single project by itself could have a significant impact on the environment with respect to GHGs. However, the cumulative effect of human activities has been clearly 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). Therefore, the analysis of

the environmental effects of GHG emissions is inherently a cumulative effect 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 cumulative effect with respect to global climate change.

With respect to global warming, CO_2 is tracked as a contributor to GHG emissions. The SMAQMD has emissions models for projects in the Sacramento Valley area. These models calculate air emissions based on construction phase, duration, type of equipment, project area, and other input criteria. GHG emissions generated by the proposed action would be predominantly be in the form of CO_2. CO_2 emissions would be generated from combustion sources including operation of construction vehicles, mobile vehicles, and haul trucks. Construction emissions of CO_2 would be short-term and temporary and would be less than significant. As discussed in section 3.3.2, CO_2 calculations using the Roadmod construction emissions model indicate that an estimated 175.8 tons/year of CO2e emissions from project-level construction activities would be emitted over the course of the 4 month construction period.

These emissions would not exceed the SMAQMD adopted GHG significance threshold for stationary sources (10,000 metric tons/year of CO_2e). As stated in section 3.3.2, when compared to regional and statewide GHG emissions, as well as adopted SMAQMD significance thresholds for GHGs, the proposed action GHG emissions would meet the State goals outlined in Assembly Bill (AB) 32. All of the projects listed in above would also be subject to the same regional and statewide GHG regulations. Therefore, cumulative impacts related to increase in GHG emissions and conflict with state goals would be less than significant.

Noise and Vibration

The geographic scope of potential cumulative noise and vibration impacts encompasses the area under the jurisdiction of the City of Folsom and Sacramento County. The proposed action could overlap with ongoing Folsom JFP projects, California Health Care Facility, and roadway improvement projects that are in and around the vicinity of the Folsom Facility. It is expected that noise effects from these projects would be similar to the proposed action in that effects would result primarily from construction activities. Simultaneous construction of these projects would increase noise levels from onsite construction and transport of materials.

The worst-case assumption indicates that simultaneous construction at the Folsom Facility could potentially increase source noise emissions. If these construction projects are implemented concurrently, the combined cumulative effects could be above significance thresholds, although these effects would be temporary. Coordination of construction activities with Reclamation would occur throughout the project in an effort to keep potential noise effects to below significance thresholds. This coordinated effort would be adjusted based on any feedback that is received from the City of Folsom. These coordination efforts would reduce any potential cumulative noise effects to less than significant.

Traffic and Circulation

The geographic scope of potential cumulative traffic and circulation impacts encompasses the roadways in the project region where traffic generated by multiple projects would interact with the public on a cumulative basis. The proposed action could overlap with ongoing Folsom JFP projects, California Health Care Facility, and roadway improvement projects that are in and around the vicinity of the Folsom Facility. It is expected that traffic effects from the other projects would be similar to the proposed action in that effects would be primarily from the hauling of equipment and material to and from the proposed project sites and the daily commutes of the workers on-site.

Continued construction activities and the requisite additional traffic demands due to labor force access and materials deliveries are expected to be ongoing, however minor in nature and not affecting the existing traffic patterns or operation to a significant degree. In addition, with the installation of the traffic signal, the level of service of Folsom Lake Crossing is expected to improve to the network to a LOS B.

The construction activities associated with the proposed action would be sequenced, and thereby not allow concentrated traffic volumes for any isolated durations. Additionally, the local and state government's general roadway improvements and maintenance are anticipated to provide improvements to the network. Each of the related projects listed above would perform a similar analysis, and would reduce any cumulative effects to less than significant.

Water Resources and Quality

The geographic scope for the potential cumulative water quality impacts encompasses the outflow channel below Folsom Dam (i.e. the Lower American River channel), and Lake Natoma. The proposed action could overlap with ongoing Folsom JFP projects which have the potential to create storm water runoff that could be discharged to outflow channel.

Projects could adversely affect water quality in these waters through clearing, grading, and foundation excavation work that could increase the potential for soil erosion and subsequent turbidity. During the rainy season, stormwater runoff from areas that have been cleared for these projects may contain high levels of suspended sediments. Together, these projects could potentially result in a cumulative effect on water quality.

The analysis results for potential impacts from the proposed action were less than significant; thus, would not contribution to cumulative effects on water quality. Implementation of the appropriate mitigation measures for each these identified projects and appropriate monitoring and testing, along with the mitigation measures for the proposed action, which include implementation of a SWPPP, BMPs, pertinent permits, would ensure that the potential cumulative effects on water quality to a less than significant level.

Fisheries

The geographic scope for potential cumulative fisheries impacts encompasses the outflow channel below Folsom Dam (i.e., the Lower American River channel) and Lake Natoma. The

proposed action could overlap with ongoing Folsom JFP projects. Short-term land-based activities of concurrent or cumulative projects would comply with Federal and State water quality mandates to avoid contributions towards aquatic effects that could have an adverse impact on fisheries. Project compliance with Federal and State water quality regulations would ensure that effects are negligible or produce less-than-significant effects on Folsom Reservoir fish. As a result, the project would not significantly contribute to cumulative effects on fisheries.

Recreation

The geographic scope for potential cumulative recreational impacts encompasses the City of Folsom bike trails. The proposed action could overlap with the construction of the Johnny Cash Folsom Prison Blues (Folsom Lake) Trail, which would improve recreational access from the Historic Truss Bridge to Green Valley Road. Access along the bike trails would not be prohibited during the construction of the proposed action, and the City of Folsom would end up with an increase in bike trails. As a result, the project would not contribute to cumulative effects on recreational resources.

Cultural Resources

The Corps has determined that the project would have no potential to effect cultural resources. As a result, the project would not contribute to cumulative effects on cultural resources.

4.2 Growth-Inducing Effects

The proposed action would not directly remove obstacles to growth, result in population increases, or encourage and facilitate other activities that could significantly affect the environment. New development must be consistent with existing City and County general plan policies and zoning ordinances regarding land use, open space, conservation, flood protection, and public health and safety. Local population growth and development would be consistent with the most current Land Use Element of the County of Sacramento General Plan.

The project area is zoned specifically for flood control activities, recreation, and Folsom State Prison activities. These land uses would not change due to the construction of the proposed project, or any of the related projects in the area. In addition, construction, operation, and maintenance of the improvements would not result in a substantial increase in the number of permanent workers or employees.

5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

5.1 Federal Requirements

Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq. *Full compliance*. The proposed action is not expected to violate any Federal or State air quality standards, exceed the U.S. EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of BMPs would reduce NOx emissions to below

local thresholds. Thus, the Corps has determined that the proposed project would have no significant effects on the future air quality in the area.

Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq. *Full Compliance*. Compliance with Clean Water Act Section 404(b)(1) was not required, as there will be no placement of fill material into the waters of the U.S. The contractor will obtain the water quality permits for this project. Each permit is pertinent to different aspects of construction activity and associate potential pollutants. The following National Pollutant Discharge Elimination System permits will be obtained:

1. Storm Water Permit: NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

2. Industrial Storm Water Permit: NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities.

As part of these permits, the contractor would be required to implement BMPs to avoid and minimize any adverse effects of construction on surface waters.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. *Full Compliance*. A list of Federally-listed threatened, endangered, and proposed species that could in or near the project area was obtained from the USFWS website on (June 13, 2012) (Appendix B). Due to the lack of suitable habitat, the Corps has determined that the project would have no effect on these species, and no formal consultation under Section 7 of this act would be required.

Executive Order 11988, Floodplain Management. *Full Compliance*. The objective of this Executive Order is the avoidance, to the extent possible, of long-and short-term adverse effects associated with the occupancy and modification of the base flood plain (1 in 100 annual flood event) and the avoidance of direct and indirect support of development in the base flood plain wherever there is a practicable alternative. The proposed project is a portion of the Folsom JFP and it has been determined, by the project partners and Congress, that constructing the Folsom JFP is the only practicable way to reduce flood risk to the greater Sacramento area. The Folsom JFP in combination with other area flood risk projects, protects the existing urban population while providing residual risk information to the appropriate agencies making land use decisions in the area. Therefore the proposed project does not contribute to increased development in the floodplain and is in compliance with the executive order.

Executive Order 11990, Protection of Wetlands. *Full Compliance*. This executive order directs Federal agencies, in carrying out their responsibilities, to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. The project area is not located in or adjacent to wetlands and therefore would have no adverse effects on wetlands.

Executive Order 12989, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Full Compliance*. This Executive Order states that Federal agencies are responsible to conduct 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 benefits of the proposed action would extend to all areas of the greater Sacramento Area. The proposed project is on public land and is not located near any minority or low-income areas or communities.

Farmland Protection Policy Act, 7 U.S.C. 4201 et seq. *Full Compliance*. This act requires a Federal agency to consider the effects of its actions and programs on the Nations' farmland. There are no designated prime or unique farmlands within the project area, and therefore there would no adverse effects to farmland.

Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq. *Full Compliance*. This act requires Federal agencies to consult with the USFWS and State fish and game agencies before undertaking or approving water projects that control of modify surface water. Federal agencies undertaking water projects are required to fully consider recommendations made by the USFWS.

In March 2006, the USFWS provided the Corps with a Coordination Act Report (2006 CAR), including general recommendations, for the Folsom Bridge Project (Appendix A). Since the footprint of the design refinements lies entirely within the footprint of the bridge project, the recommendations would be applicable to the proposed action. The USFWS also provided the Corps with a letter, dating August 20, 2012, with additional general recommendations. The recommendations in both the 2006 CAR and the August 2012 letter would be implemented by the project.

Magnuson-Stevens Fishery Conservation and Management Act. *Full Compliance*. This legislation requires that all Federal agencies consult with National Marine Fisheries Service regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat. Essential fish habitat is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Corps has determined the project would have no effect on Federally listed threatened and endangered species, and essential fish habitat.

Migratory Bird Treaty Act of 1936, as amended, 16 U.S.C. 703 et seq. *Full Compliance*. This Act provides protection for migratory birds as defined in 16 USC 715. The proposed action is located in an existing construction area and currently does not support suitable nesting habitat for migratory birds. Therefore, the proposed project would not result in the removal of any suitable nesting habitat. To ensure the project would not affect migratory birds, a biologist would conduct preconstruction surveys in areas adjacent to the project site. If breeding birds or active nests are found in the area, a protective buffer would be delineated, and the USFWS and CDFG would be consulted for further action prior to implementation of construction.

National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq. *Full Compliance*. This EA/EIR is in full compliance with this act. Comments received during the public review period have been considered fully and incorporated into the EA/EIR, as appropriate.

These comments and responses are included in Appendix I. The final EA/EIR will be accompanied by a signed FONSI if determined to be appropriate by the District Engineer after consideration of public comments.

National Historic Preservation Act of 1966, as amended. *Full Compliance*. The project is in full compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). In accordance with 36 CFR § 800.3(a)(1), *No potential to cause effects*, the project has been determined to be an undertaking that does not have the potential to cause effects on historic properties. As a result, the project may proceed as planned. A Memorandum for Record documenting this determination is included in Appendix H.

Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq. *Full Compliance*. This act was enacted to preserve selected rivers or sections of rivers in their free-flowing condition in order to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981. The proposed project is located above this reach of the river and therefore, does not affect this portion of the Lower American River.

5.2 State of California Requirements

California Environmental Quality Act. *Full Compliance*. This joint NEPA/CEQA document is in full compliance with CEQA requirements. The CVFPB will consider certifying the EIR and adopting its findings. Completion of this action by the CVFPB will provide full compliance for CEQA.

California Endangered Species Act. *Full Compliance*. This act requires the non-Federal agency to consider the potential adverse affects on State-listed species. As a joint NEPA/CEQA document, this EA/EIR has considered the potential effects and has determined that due to the lack of suitable habitat for any State-listed species, the project would have no effect on those State special status species associated with the proposed action.

6.0 COORDINATION AND REVIEW OF THE EA/EIR

6.1 Public Involvement

The public involvement for the Folsom JFP has included public attendance and participation at meetings where possible design refinements have been discussed. These activities included a community outreach program with public workshops, notices, and media; and distribution of the draft documents for public review and comment. The public and other interested/affected parties have been encouraged to comment on all activities associated with the design and evaluation of the Folsom JFP.

6.2 Review of the EA/EIR

The draft EA/EIR was circulated for 45 days to agencies, organizations, and individuals who have an interest in the proposed project. All comments received were considered and

incorporated into the final EA/EIR, as appropriate. This project has been coordinated with all relevant government resource agencies including Reclamation, CVFPB, Folsom State Prison, USFWS, and CVRWQCB.

7.0 FINDINGS

Based on the information in this EA/EIR, the proposed design refinements would have no significant adverse effects on environmental resources. Mitigation consisting of BMPs and other measures proposed in this EA/EIR are sufficient to reduce all direct, indirect, and cumulative effects to less than significant. As a result, the project would meet the requirements for actions permitted following completion of a FONSI as described in 40 CFR 1508.13. These actions would not have a significant effect on the quality of the human environment and do not require preparation of an environmental impact statement. Therefore, a FONSI has been prepared and accompanies this EA.

This joint NEPA/CEQA document is in full compliance with CEQA requirements. The CVFPB will consider certifying the EIR and adopting its findings. Completion of this action by the CVFPB will provide full compliance for CEQA.

8.0 LIST OF PREPARERS

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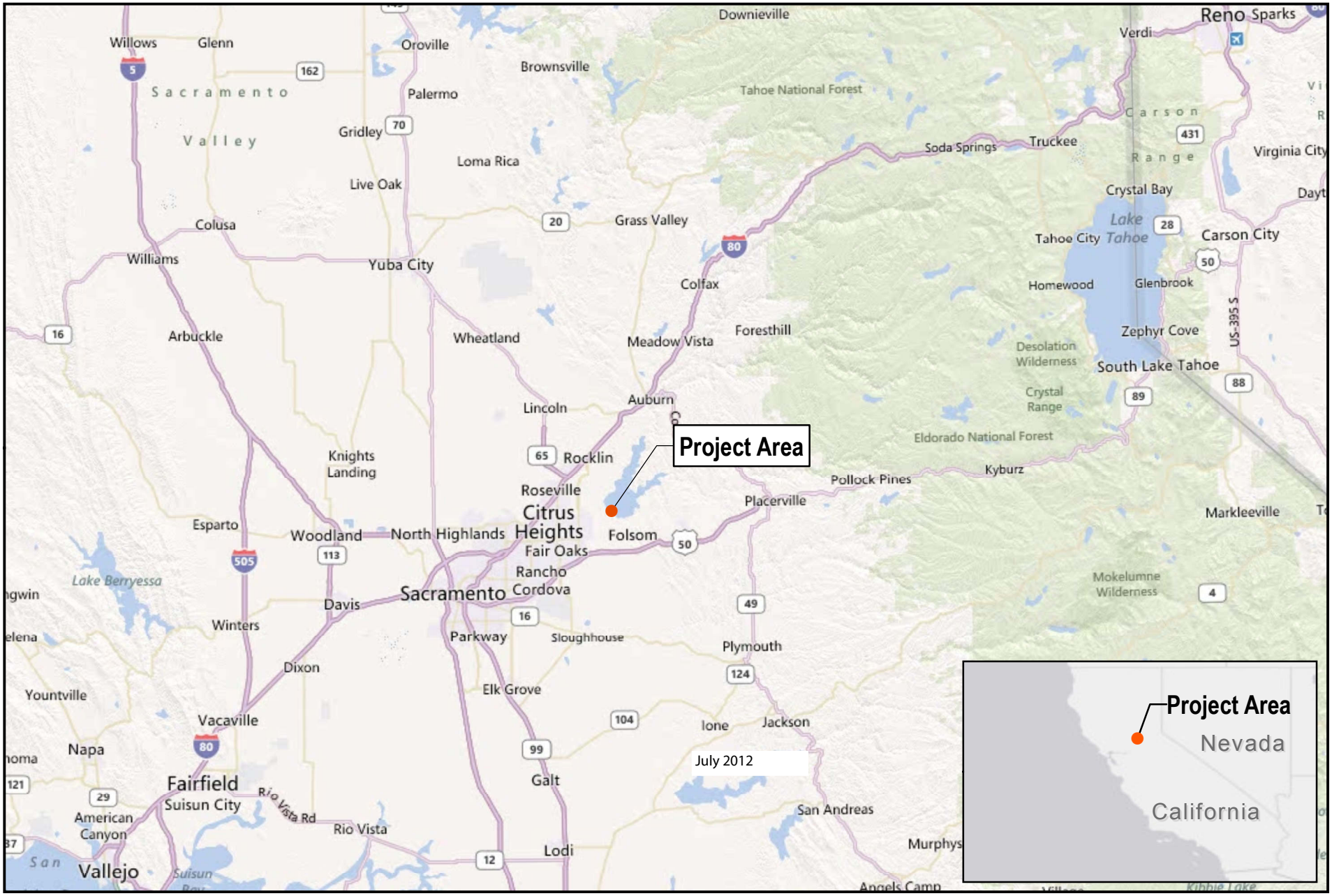
PLATES



Project Vicinity Map

Folsom Dam Safety and Flood Damage Reduction, Downstream Features

US Army Corps of Engineers
Sacramento District

0 5 10 20 Miles

Plate 1

Project Features

Folsom Dam Safety and Flood Damage Reduction,

Downstream Features

US Army Corps of Engineers
Sacramento District

Plate 2

Photo 1. Typical Batch Plant Operation

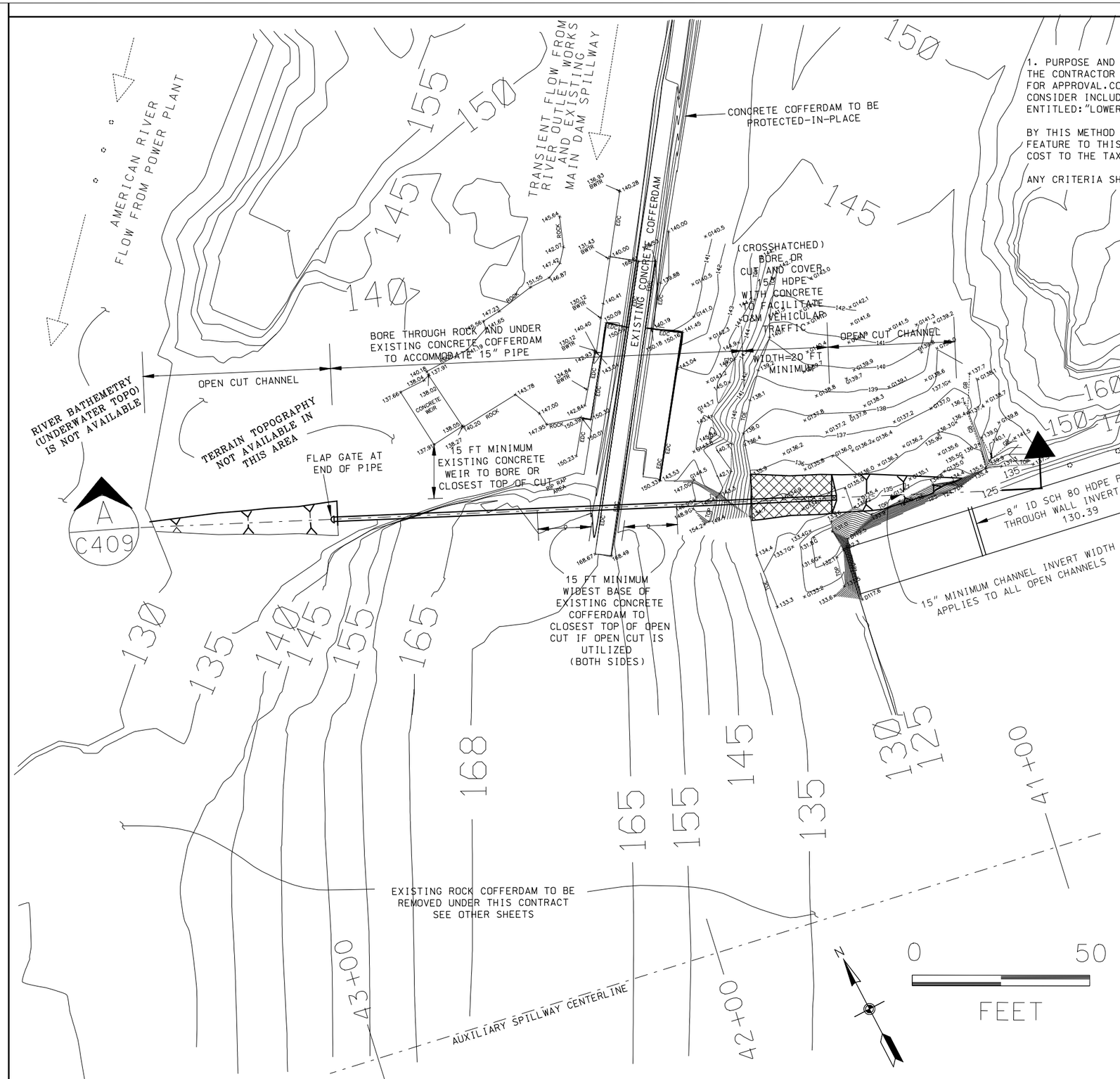
Photo 2. Dirt Access Road Location

Plate 3

Photo 3. Folsom State Prison Property

Photo 3. Stilling Basin Drain Location

Plate 3



NOTES:

1. PURPOSE AND INTENTION:THIS IS A CONCEPTUALIZED AND PARTIALLY DESIGNED PERMANENT FEATURE. THE CONTRACTOR SHALL COMPLETE DESIGN AND DETAILING AND SUBMIT TO THE CONTRACTING OFFICER FOR APPROVAL.CONTRACTOR MAY USE A COMBINATION OF BORING AND OPEN CUT. RESTRICTIONS TO CONSIDER INCLUDE BUT ARE NOT LIMITED TO THE PROVISIONS SHOWN ON THIS AND THE OTHER SHEETS ENTITLED:"LOWER SITE DRAINAGE".

BY THIS METHOD THE GOVERNMENT INTENDS AND EXPECTS TO PROVIDE A FUNCTIONAL AND PERMANENT FEATURE TO THIS PROJECT WHILE ALSO PROVIDING THE EASIEST METHOD TO THE CONTRACTOR AND LEAST COST TO THE TAXPAYER.

ANY CRITERIA SHOWN ON ANY EXAMPLE APPLIES TO THE FINAL DESIGN THE CONTRACTOR SHALL SUBMIT.

NOTES (CONTINUED):

2. BACKGROUND: FOLLOWING AUXILIARY SPILLWAY RELEASES AND AFTER THE CONTROL STRUCTURE GATES CLOSE, WATER WILL CONTINUE TO EXIT TO THE RIVER UNTIL THIS LOWER AREA WATER SURFACE REACHES ABOUT ELEV 141. 141 IS THE LOWEST PART OF THE 30:1 CUT LINE WHERE THE CUT DAYLIGHTS THE EXISTING TERRAIN DOWNSTREAM OF THE STILLING BASIN SILL. THIS FEATURE MUST DRAIN THE REMAINING WATER, BELOW ELEV 141, BOTH INSIDE AND SURROUNDING THE STILLING BASIN.

3. REQUIREMENTS THE CONTRACTOR SHALL COMPLY WITH IN THE DESIGN AND CONSTRUCTION OF THIS FEATURE INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

ALL ENVIRONMENTAL REQUIREMENTS AS STATED IN SPECIFICATION SECTION 01 57 02 ENVIRONMENTAL PROTECTION, ELSEWHERE IN THIS CONTRACT, OR AS REQUIRED BY FEDERAL, STATE OR LOCAL ORDINANCE.

ALL STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS AS STATED IN SPECIFICATION 01 57 23 TEMPORARY STORM WATER POLLUTION CONTROL, ELSEWHERE IN THIS CONTRACT,OR AS REQUIRED BY FEDERAL, STATE OR LOCAL ORDINANCE..

PLANS SUBMITTED FOR GOVERNMENT APPROVAL SHALL SHOW RIVER PROTECTION PROCEDURES AND SAFETY AND ENVIRONMENTAL PROTECTION AND EVACUATION PLANS IN THE EVENT THE RIVER RISES UNEXPECTEDLY.

4. THE CONTRACTOR'S OPTION CONSISTS OF THE FOLLOWING WITHIN THE RESTRICTIONS AND PROVISOS AS SHOWN ON THESE DRAWINGS, STATED IN THE SPECIFICATIONS OR AS REQUIRED BY THE GOVERNMENT REVIEW.

THE HORIZONTAL ALIGNMENT
PROPORTIONING AND LOCATING OPEN CUT AND BORE

THE CONTRACTOR NEED NOT SELECT EITHER EXAMPLE OF ALIGNMENT, BORE AND OPEN CUT IN ITS ENTIRETY.

5. CONTRACTOR SHALL FIELD CHECK TOPOGRAPHY AND OTHER PERTINENT CONDITIONS PRIOR TO BID.

6. THE TOPOGRAPHY AS SHOWN IN SMALLER TEXT TO THE NORTHWEST OF THE STILLING BASIN IS FROM A GROUND SURVEY TAKEN 01MARCH 2012 BY ANDREGG GEOMATICS INC. THE REMAINING TOPOGRAPHY IS FROM THE 12JANUARY2011AERIAL PHOTOGRAMMETRY INITIATED BY THE USBR. HORIZONTAL DATUM IS CA STATE PLANE COORDINATE SYSTEM ZONE 2 NAD83. VERTICAL DATUM IS NAVD88.

US Army Corps of Engineers
Sacramento District

Symbol	Description	Date	Approved
		XXX	XXX

Designed by: TC
Dwn by: TC
Spec No: 1859
Reviewed by: RC
Submitted by: DAVE WATTS
DESIGN BRANCH
Date:
Rev.
Design file no: AM1-04-0842
Drawing Code:
File name:
Plot scale:
Dwg scale:

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

SACRAMENTO DISTRICT
IN-HOUSE DESIGN
1325 J STREET
SACRAMENTO, CA 95814-2922

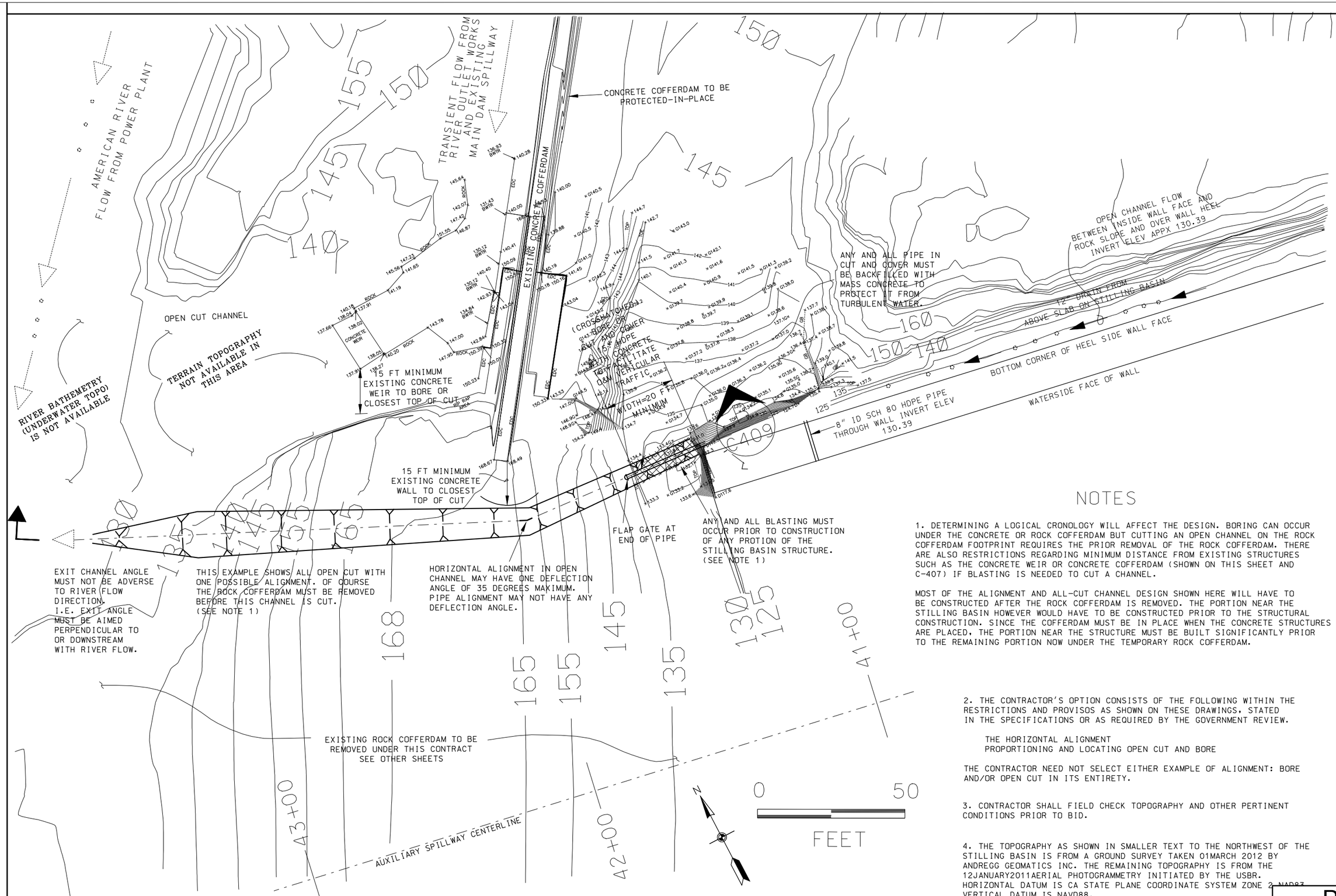
AMERICAN RIVER WATERSHED CALIFORNIA

FOLSOM DAM AUXILIARY SPILLWAY
CHUTE AND STILLING BASIN

LOWER SITE DRAINAGE
EXAMPLE 1 PLAN

Sheet reference number:
C-407

Plate 4



NOTES

1. DETERMINING A LOGICAL CRONOLOGY WILL AFFECT THE DESIGN. BORING CAN OCCUR UNDER THE CONCRETE OR ROCK COFFERDAM BUT CUTTING AN OPEN CHANNEL ON THE ROCK COFFERDAM FOOTPRINT REQUIRES THE PRIOR REMOVAL OF THE ROCK COFFERDAM. THERE ARE ALSO RESTRICTIONS REGARDING MINIMUM DISTANCE FROM EXISTING STRUCTURES SUCH AS THE CONCRETE WEIR OR CONCRETE COFFERDAM (SHOWN ON THIS SHEET AND C-407) IF BLASTING IS NEEDED TO CUT A CHANNEL.

MOST OF THE ALIGNMENT AND ALL-CUT CHANNEL DESIGN SHOWN HERE WILL HAVE TO BE CONSTRUCTED AFTER THE ROCK COFFERDAM IS REMOVED. THE PORTION NEAR THE STILLING BASIN HOWEVER WOULD HAVE TO BE CONSTRUCTED PRIOR TO THE STRUCTURAL CONSTRUCTION. SINCE THE COFFERDAM MUST BE IN PLACE WHEN THE CONCRETE STRUCTURES ARE PLACED, THE PORTION NEAR THE STRUCTURE MUST BE BUILT SIGNIFICANTLY PRIOR TO THE REMAINING PORTION NOW UNDER THE TEMPORARY ROCK COFFERDAM.

2. THE CONTRACTOR'S OPTION CONSISTS OF THE FOLLOWING WITHIN THE RESTRICTIONS AND PROVISOS AS SHOWN ON THESE DRAWINGS, STATED IN THE SPECIFICATIONS OR AS REQUIRED BY THE GOVERNMENT REVIEW.

THE HORIZONTAL ALIGNMENT
PROPORTIONING AND LOCATING OPEN CUT AND BORE

THE CONTRACTOR NEED NOT SELECT EITHER EXAMPLE OF ALIGNMENT: BORE AND/OR OPEN CUT IN ITS ENTIRETY.

3. CONTRACTOR SHALL FIELD CHECK TOPOGRAPHY AND OTHER PERTINENT CONDITIONS PRIOR TO BID.

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US Army Corps of Engineers
Sacramento District

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SACRAMENTO, CALIFORNIA

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AMERICAN RIVER WATERSHED CALIFORNIA

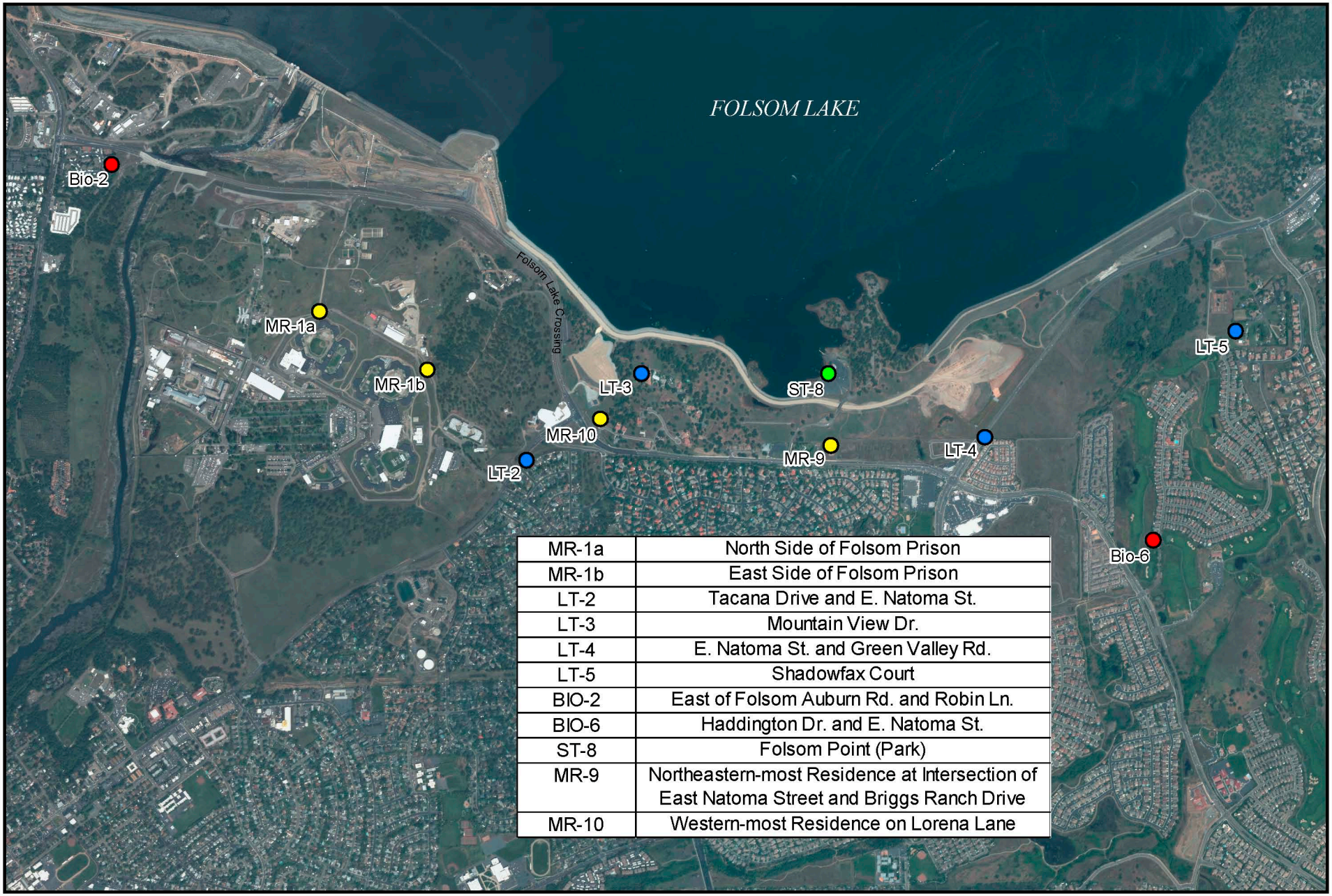
FOLSOM DAM AUXILIARY SPILLWAY
CHUTE AND STILLING BASIN

LOWER SITE DRAINAGE
EXAMPLE 2 PLAN

Sheet reference number:
C-408

Plate 5

\\Amethyst\Folsom\JFP\CADD\Civil_95%\Tomcat's_Downstream\n-AMI040842_C408.dgn 17-APR-2012 12:55



MR-1a	North Side of Folsom Prison
MR-1b	East Side of Folsom Prison
LT-2	Tacana Drive and E. Natoma St.
LT-3	Mountain View Dr.
LT-4	E. Natoma St. and Green Valley Rd.
LT-5	Shadowfax Court
BIO-2	East of Folsom Auburn Rd. and Robin Ln.
BIO-6	Haddington Dr. and E. Natoma St.
ST-8	Folsom Point (Park)
MR-9	Northeastern-most Residence at Intersection of East Natoma Street and Briggs Ranch Drive
MR-10	Western-most Residence on Lorena Lane

LEGEND

- Bio-sensitive Measurement
- Long-Term Measurement
- Short-Term Measurement
- Modeled Sensitive Receiver

Noise Sensitive Receptors

US Army Corps of Engineers
Sacramento District

0 500 1,000 2,000 Feet

Folsom Dam Modification Project, Approach Channel

Date: March 2012

Plate 6