3.1 Water Quality and Groundwater Resources

This supplemental environmental impact report (SEIR) addresses proposed modifications to the B.F. Sisk Dam Safety of Dams Modification Project, which was previously evaluated in the B.F. Sisk Dam Safety of Dams Modification Project Environmental Impact Statement/Environmental Impact Report (2019 EIS/EIR). The project addressed in the 2019 EIS/EIR is referred to herein as the Approved Project; the Approved Project with proposed modifications identified since certification of the 2019 EIS/EIR is referred to herein as the Modified Project.

This section describes the existing hydrology, groundwater, and water quality conditions of the Modified Project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies any applicable mitigation measures related to the implementation of the Modified Project.

Public Scoping and Review Comments Received on 2019 EIS/EIR

The SEIR must consider comments received during public scoping and public review of the 2019 EIS/EIR prepared for the Approved Project. The following comment related to water quality and groundwater resources was provided on the 2019 EIS/EIR during public scoping and was summarized in the 2019 EIS/EIR as follows:

- Scoping comment from the Santa Nella County Water District, which purchases water from the San Luis Water District, pumps raw water from the California Aqueduct/San Luis Canal, and treats the water prior to providing potable water to the town of Santa Nella. The District struggles to meet California Department of Public Health drinking water regulations. The commenter expressed concern over water quality before, during, and after construction. Additionally, the commenter asked if the Approved Project would aid in the correction of raw water quality issues.

The Modified Project includes changes to the Approved Project that would result in impacts outside the study area identified by the 2019 EIS/EIR and would change uses to include the addition of materials excavation sites or borrow areas within the study area identified by the 2019 EIS/EIR. The following impact analysis addresses potential construction-related water quality issues, but does not address correction of raw water quality issues of water managed by the San Luis Water District, as it is beyond the scope of the Modified Project. Any changes identified subsequent to the 2019 EIS/EIR would have no bearing on the quality of raw water delivered via the California Aqueduct/San Luis Canal.

3.1.1 Existing Conditions

3.1.1.1 Regional Watershed

The Modified Project site is located within the San Joaquin River watershed, an approximately 15,600 square mile region that is bordered to the north by the Sacramento River watershed, to the south by the Tulare Basin watershed, to the east by the Sierra Nevada, and to the west by the Pacific Coast Ranges (EPA 2020).

The primary tributary for the San Joaquin River watershed is the San Joaquin River, which originates in the Sierra Nevada and generally flows north through the Central Valley before merging with the Sacramento River. Tributary rivers that flow into the San Joaquin River include (from south to north) the Fresno, Chowchilla, Merced, Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes Rivers (Figure 3.1-1, San Joaquin River Watershed) (EPA 2020).

Water flows in the San Joaquin River have been substantially modified by dams and diversions that collectively remove 95% of the water from the river. These diversions cause the San Joaquin River to be dry for more than 60 miles. However, water diversion structures, such as the Delta–Mendota Canal (DMC), have been constructed to replenish some of the water diverted from the San Joaquin River by transporting Sacramento River water to the depleted river channel as well as to agricultural users with the watershed (EPA 2020).

The land area in the San Joaquin River watershed is diverse, ranging from snow-covered peaks to sub-sea level agricultural areas. Extensive forest areas cover the mountain slopes; more than 3,000 square miles of agriculture are present in the Central Valley; and 2 million people live in the major urban centers of Stockton and Fresno, small towns, and rural communities within the watershed (EPA 2020).

3.1.1.2 Site Topography and Drainage

The additional impact areas of the Modified Project are located (1) immediately downstream of the central and southern base of the dam (i.e., the additional staging and stockpiling areas); (2) within approximately 0.5 miles downstream of the southern portion of the dam (i.e., Borrow Areas 12 and 14); and (3) on the west shore of O'Neill Forebay (i.e., the proposed campground and existing San Luis Creek Day Use Area) (Figures 2-4A and 2-4B, Modified Project Detail). The embankment of the dam is steeply to moderately sloped and sparsely vegetated. A concrete-lined spillway conduit of the dam is located within the northern portion of the embankment, immediately east of the Gianelli Pumping-Generating Plant.

Near the southern shoreline of San Luis Reservoir, south of Basalt Road, the Modified Project site consists of moderately to steeply sloped, undulated, and sparsely vegetated hillsides. North of Basalt Road, near the southeastern shoreline of the reservoir, the Modified Project site consists of low-lying flat topography (Figure 2-4B). Runoff in this region infiltrates into the underlying sediment and/or sheet flows directly into San Luis Reservoir.

Southeast of the dam embankment, Borrow Area 12 (Figure 2-4B) consists of an approximately 28-acre grassland hillside that is about 100 feet higher than the surrounding lower-lying area. The top of Borrow Area 12 is relatively flat, having been used in the past as a borrow area for the initial construction of the dam. The adjoining (to the south) 200-acre Borrow Area 14 encompasses four low grassland hills, which are up to 200 feet higher than the downstream base of the dam. Runoff within this area infiltrates into the underlying, pervious soils and/or sheet flows into the low-lying alluvial areas before infiltrating or being transported in drainages toward O'Neill Forebay to the north.

The northwestern and western shoreline of O'Neill Forebay, in the vicinity of the proposed campground and existing San Luis Creek Day Use Area, consists of relatively flat-lying areas adjacent to the shoreline, with gentle to moderately sloping hillsides along the western portions of these additional impact areas. Except for a paved road traversing the site, the proposed campground area is unpaved and undeveloped. The existing San Luis Creek Day Use Area includes paved parking lots, boat ramps, roadways, and recreational structures (e.g., gazebos, public restrooms, campsites). However, pervious unpaved areas are present throughout the day use area. This portion of the Modified Project site is moderately vegetated with trees, brush, and grasses (Figure 2-4A). Stormwater from paved areas either sheet flows directly into O'Neill Forebay or flows into unpaved areas within the day use area. Stormwater runoff from these pervious unpaved areas infiltrates into the underlying sediments and/or sheet flows into the forebay.

3.1.1.3 Groundwater

Portions of the proposed campground and the San Luis Creek Day Use Area are underlain by the Delta–Mendota Subbasin (defined by California Department of Water Resources [DWR] in Bulletin 118 as Subbasin No. 5-022.07), one of nine subbasins located within the larger San Joaquin Valley Groundwater Basin (Figure 3.1-2, Delta–Mendota Groundwater Subbasin). DWR Bulletin 118, California's Groundwater, is the State's official publication on the occurrence and nature of groundwater in California. The publication defines the boundaries and describes the hydrologic characteristics of groundwater basins within California. Bulletin 118 also provides information on groundwater management and recommendations for the future (DWR 2020a; CVRWQCB 2006). The San Joaquin Valley Delta–Mendota Subbasin is approximately 1,170 square miles in size and is bound geologically and topographically to the west by the Tertiary and older marine sediments of the Coast Ranges, and to the east generally by the San Joaquin River (DWR 2006). Jurisdictional boundaries of water purveyors dictate the northern, central, and southern portion of the eastern boundary within the Delta–Mendota Subbasin. The Modified Project site is located within the central portion of this subbasin (SLDMWA 2019). DWR has not identified a groundwater basin underlying the remaining portions of the Modified Project site (DWR 2020b).

Two primary aquifers comprise the Delta–Mendota Subbasin, each of which consists of alluvial deposits and is separated by Corcoran Clay: 1) a semi-confined Upper Aquifer zone (generally the ground surface to the top of Corcoran Clay), and 2) a confined Lower Aquifer zone starting at the bottom of Corcoran Clay to the base of freshwater. However, the localized presence of clay layers in the southern portion of the subbasin, absence of Corcoran Clay at the western margin of the subbasin, and local hydrostratigraphy, result in differing shallow groundwater conditions and/or perched groundwater conditions in some portions of the subbasin (SLDMWA 2019).

Groundwater Management

In accordance with the Sustainable Groundwater Management Act (SGMA), DWR has classified the Delta–Mendota Subbasin as a high priority in regard to completion of a Groundwater Sustainability Plan (GSP). As such, in June 2017, 24 Groundwater Sustainability Agencies (GSAs) formed within the subbasin to oversee the development and implementation of regional GSPs, with the ultimate goal of achieving sustainable management of the Delta–Mendota Subbasin (Delta–Mendota SGMA 2020). As of 2019, a GSP has been completed for the northern and central portions of the subbasin, which includes portions of the proposed campground and existing San Luis Creek Day Use Area (Figure 3.1-2) (SLDMWA 2019).

Groundwater Beneficial Uses

The Delta–Mendota Subbasin is in the San Joaquin Valley, one of the most agriculturally productive regions in California and the United States. Groundwater is one of the primary sources of water supply for agricultural uses within the subbasin and is typically used to offset demands not met by surface water from the San Joaquin River, Central Valley Project, and California State Water Project. Groundwater is also the sole source of supply for many communities and cities throughout the Delta–Mendota Subbasin. In general, most irrigation wells and many private domestic supply wells are screened in the Upper Aquifer of the subbasin. Most municipal production wells and many larger irrigation production wells in the Northern and Central Delta–Mendota Subbasin are screened in the Lower Aquifer, below the Corcoran Clay (SLDMWA 2019).

Groundwater Quality

Groundwater quality is a primary factor in groundwater supply reliability. No known groundwater contamination sites or plumes are present within the Northern and Central Delta–Mendota Subbasin. Groundwater quality concerns within the subbasin are primarily related to non-point sources and/or naturally occurring constituents. Constituents of concern, both natural and anthropogenic, can impact human health and agricultural production (SLDMWA 2019).

Primary constituents of concern within the Northern and Central Delta–Mendota Subbasin are nitrate, total dissolved solids, and boron, which all have anthropogenic as well as natural sources. Other known constituents of concern within the subbasin include arsenic, selenium, and hexavalent chromium. These constituents are naturally occurring in the Delta–Mendota Subbasin and have been detected at concentrations above the water quality objective levels at various locations throughout the subbasin. Concentrations of these constituents do not appear to be linked to groundwater elevations, and as such, these constituents (and their associated concentrations) are considered to be existing conditions. No specific projects and/or management practices are available that can be implemented to mitigate these constituents (other than groundwater treatment) that are not currently being implemented through regulatory programs. Therefore, these constituents are not considered manageable as part of the Northern and Central Delta–Mendota GSP, other than through the coordination of GSP implementation with existing and anticipated future regulatory programs (SLDMWA 2019).

3.1.1.4 Subsidence

Several types of subsidence occur in the San Joaquin Valley, including subsidence related to hydrocompaction of moisture-deficient deposits above the water table; subsidence related to fluid withdrawal from oil and gas fields; subsidence caused by deep-seated tectonic movements; and subsidence caused by oxidation of peat soils, which is a major factor in the Sacramento–San Joaquin River Delta. However, aquifer-system compaction caused by groundwater pumping causes the largest magnitude and areal extent of land subsidence in the San Joaquin Valley (SLDMWA 2019).

Land subsidence is a prevalent issue in the Delta–Mendota Subbasin as it has impacted prominent infrastructure of statewide importance, namely the DMC and the California Aqueduct, as well as local canals, causing serious operational, maintenance, and construction-design issues. Reduced freeboard and flow capacity for the DMC and California Aqueduct have rippling effects on imported water availability throughout California. Even small amounts of subsidence in critical locations, especially where canal gradients are small, can impact canal operations. Differential land subsidence can also result in piping ruptures, resulting in loss of water or other substances. While some subsidence is reversible (referred to as elastic subsidence), inelastic or irreversible subsidence is caused mainly by pumping groundwater from below Corcoran Clay, thus causing compaction and reducing storage in the lower confined aquifer, as well as damaging well infrastructure. As a result, important and extensive damage and repairs have resulted in the loss of conveyance capacity in canals that deliver water or remove floodwaters; the realignment of canals as their constant gradient becomes variable; the raising of infrastructure such as canal check stations; and the releveling of furrowed fields (SLDMWA 2019).

Based on subsidence rates observed over the last decade, it is anticipated that subsidence will continue to impact operations of the DMC and California Aqueduct without mitigation. For example, recently, the San Joaquin River near Dos Palos (at the lower end of the Northern and Central Delta–Mendota Regions, where most land subsidence has historically occurred) experienced between 0.38 and 0.42 feet per year in subsidence between 2008 and 2016. As a result of subsidence, ground elevations are projected to be lowered by 0.5 foot by 2026, as compared to 2016, resulting in a 50% reduction in designed flow capacity. Reduced flow capacities in the California Aqueduct will impact deliveries and transfers throughout California and result in the need to pump more groundwater, thus contributing to further subsidence (SLDMWA 2019).

While subsidence is poised to be a long-lasting issue for the San Joaquin Valley, recorded subsidence rates for portions of the Modified Project site located within the Delta–Mendota Subbasin were less than 0.15 feet per year, from December 2011 to December 2014 (SLDMWA 2019). Moreover, according to Figure 10-3, Areas of Ground Subsidence Within Merced County, of the 2030 Merced County General Plan Draft Background Report (Merced County 2013a), and the U.S. Geological Survey Areas of Land Subsidence in California map (USGS 2020), no recorded instances of subsidence have occurred within the Modified Project area as a result of groundwater pumping, peat loss, or oil extraction. The lower subsidence rates in the Modified Project area are likely due to its location along the western boundary of the Delta–Mendota Subbasin (Figure 3.1-2). As such, there is a low potential for subsidence to occur within the Modified Project site.

3.1.1.5 Surface Water Quality

In accordance with State policy for water quality control, the Central Valley Regional Water Quality Control Board (CVRWQCB), among various other agencies, regulates water quality within the San Joaquin River watershed. Water quality objectives, plans, and policies for the surface waters within this region are established in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan) (CVRWCQB 2018). In the Basin Plan, CVRWQCB identifies existing and potential beneficial uses supported by key water drainages within the San Joaquin River watershed. The existing beneficial uses of San Luis Reservoir, O'Neill Reservoir, and Sacramento–San Joaquin River Delta are shown in Table 3.1-1.

Table 3.1-1. Beneficial Uses

Beneficial Use Designation	San Luis Reservoir	O'Neill Reservoir	Sacramento–San Joaquin River Delta
Municipal and Domestic Supply (MUN)	E	E	E
Agricultural Supply (AGR)	E	E	E
Industrial Process Supply (PRO)	—	E	E
Industrial Service Supply (IND)	E	—	E
Hydropower Generation (POW)	E	—	—
Water Contact Recreation (REC-1)	E	E	E
Non-Contact Water Recreation (REC-2)	E	E	E
Warm Freshwater Habitat (WARM)	E	E	E
Cold Freshwater Habitat (COLD)	—	—	E
Migration of Aquatic Organisms (MIGR)	E	—	E
Spawning, Reproduction, and/or Early Development (SPWN)	E	—	E
Wildlife Habitat (WILD)	E	E	E
Navigation (NAV)	—	—	E

Source: CVRWQCB 2018.
Note: E = Existing Beneficial Uses.

Surface Water Quality Impairment and Total Maximum Daily Loads

Receiving water quality in the San Joaquin River watershed is threatened by urbanization, stormwater runoff, and legacy pollutants. Stream channels have been altered for water storage purposes, been converted to urban land uses, and impervious surfaces have been constructed, limiting the opportunities for stormwater infiltration, and increasing peak rates of runoff. Stormwater runoff may convey trash, sediments, nutrients, pesticides, and metals directly into receiving waters. According to the 2030 Merced County General Plan Draft Program EIR, activities that impact surface water quality in the region include agricultural irrigation and animal confinement operations, forest management, municipal and industrial uses, stormwater, mineral exploration and extraction, hazardous and non-hazardous waste disposal, and dredging (Merced County 2012).

According to a water quality assessment by the U.S. Geological Survey of the San Joaquin Valley, water quality is generally poor compared to other areas in California due, in part, to the following factors (Merced County 2012):

- A large variety of pesticides occur in the San Joaquin River and the tributaries of the San Joaquin River, with some at high enough concentrations to adversely impact aquatic organisms
- Long-banned organochlorine insecticides continue to be transported to streams via erosion of contaminated soils
- Nitrate and ammonia levels exceed criteria in some of the tributaries, but not yet in the main stem of the San Joaquin River

Land use activities that cause erosion have also increased the delivery of toxic substances into local waterways. As defined in the Clean Water Act (CWA) Section 303(d), water quality impairments for the San Joaquin River watershed are identified in Table 3.1-2. These impaired bodies are listed as Category 5 in the State Water Resources Control Board (SWRCB) Integrated Report, which includes waters where at least one beneficial use is not supported, and a total maximum daily load is required. Waters in Merced County are impaired with a wide variety of point-source (e.g., industrial process water discharges, cleanup sites, sewer system overflows) and nonpoint-source (e.g., agricultural runoff, urban runoff/storm sewers, construction/land development) pollutants.

Table 3.1-2. Water Quality Impairments for the San Joaquin River Watershed

Water Body	2014 and 2016 303(d) List of Water Quality Impairments[1]
San Luis Reservoir	Chlordane; Mercury; PCBs; Total DDT (sum of 4,4'- and 2,4'- isomers of DDT, DDE, and DDD)
O'Neill Forebay	Mercury; PCBs
Sacramento–San Joaquin River Delta	Chlordane; DDT; Dieldrin; Dioxin compounds (including 2,3,7,8-TCDD); Furan Compounds; Invasive Species; Mercury; PCBs; PCBs (dioxin-like)
San Joaquin River	alpha.-BHC; Arsenic; Boron; Chlorpyrifos; Diazinon; DDE; DDT; Diuron; Group A Pesticides; Electrical Conductivity; Indicator Bacteria; Invasive Species; Mercury; pH; Selenium; Specific Conductivity; Temperature, water; Total Dissolved Solids; Toxaphene; Toxicity
Chowchilla River	N/A
Merced River	Chlorpyrifos; Group A Pesticides; Mercury; Temperature, water; Toxicity
Stanislaus River	Chlorpyrifos; Diazinon; Group A Pesticides; Mercury; Temperature, water; Toxicity
Mokelumne River	Chlorpyrifos; Copper; Mercury; Oxygen, Dissolved; Toxicity; Zinc
Cosumnes River	Indicator Bacteria; Invasive Species; Toxicity

Source: SWRCB 2017.
Notes: PCBs = polychlorinated biphenyls; DDT = dichlorodiphenyltrichloroethane; DDD = dichlorodiphenyldichloroethane; DDE = dichlorodiphenyldichloroethylene; alpha-BHC = benzenehexachloride or alpha-HCH.
[1] Included under State Water Resources Control Board Integrated Report Category 5.

Sedimentation/siltation (e.g., high turbidity) has been included as a water quality impairment under the CWA Section 303(d). Erosion, sediment transport, and sedimentation are natural fluvial processes and are only considered a water quality issue when anthropogenic activities cause excessively high erosion and turbidity beyond natural background levels (i.e., to the degree that they cause the loss or impairment of beneficial uses). In earthen-engineered channels, urbanization and channelization have increased the quantity of sediment transported and sediment buildup in maintained flood control facilities. However, such sediment buildup is managed through routine maintenance and natural processes. Sedimentation basins capture sediment-laden runoff from upstream sources and filter out sediment loads in surface runoff, thus decreasing the turbidity of stormwater flows downstream. Generally, issues related to increased surface water flow and sedimentation include increased stream erosion, which has threatened homes, utilities, and other structures; impacts to biological species and habitats; and loss of channel hydraulic capacity.

3.1.2 Relevant Plans, Policies, and Ordinances

3.1.2.1 Federal

Clean Water Act

Increasing public awareness and concern for controlling water pollution led to the enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the CWA (33 USC 1251 et seq.). The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States. The CWA established basic guidelines for regulating discharges of pollutants into the waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. The NPDES Permit Program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States (33 USC 1342). In the State of California, the U.S. Environmental Protection Agency (EPA) has authorized the SWRCB with permitting authority to implement the NPDES Program.

Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address stormwater discharges from construction sites that disturb land equal to or greater than 1.0 acre and less than 5.0 acres (small construction activity). The regulations also require that stormwater discharges from small Municipal Separate Storm Sewer Systems (MS4) be regulated by a NPDES General Permit for Stormwater Discharges Associated with Construction Activity, Order No. 99-08-DWQ. The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which describes best management practices (BMPs) the discharger would use to protect stormwater runoff. The SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment-monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. On September 2, 2009, the SWRCB issued a new NPDES General Permit for Stormwater Associated with Construction Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002), which became effective July 1, 2010, and is also known as the Construction General Permit.

Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR 131.12) requires states to develop statewide antidegradation policies and identify methods for implementing those policies. Pursuant to the Code of Federal Regulations, state antidegradation policies and implementation methods shall, at a minimum, protect and maintain (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses unless the State of California finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

3.1.2.2 State

Section 303 of the Clean Water Act (Beneficial Uses and Water Quality Objectives)

The CVRWQCB is responsible for the protection of the beneficial uses of waterways within their jurisdiction. The Modified Project is located within the CVRWCQB Basin Plan area. The CVRWQCB uses its planning, permitting, and enforcement authority to meet its responsibilities adopted in the Basin Plan to implement plans, policies, and provisions for water quality management.

In accordance with state policy for water quality control, the CVRWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan for the Central Valley has identified existing and potential beneficial uses supported by key surface water drainages throughout its jurisdiction. Under CWA Section 303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. A total maximum daily load defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The CVRWQCB has developed total maximum daily loads for select reaches of water bodies.

Section 319 of the Clean Water Act (Nonpoint Source Management Programs)

Section 319 was added to the Clean Water Act by Public Law 100-4. The purpose of Section 319 is to allow the states to establish nonpoint source management plans that are designed to address nonpoint source pollution issues within each state. Section 319(k) requires each federal department and agency to allow states to review individual development projects and assistance applications, as well as accommodate, in accordance with Executive Order 12372, the concerns of the state regarding the consistency of these applications or projects with the state nonpoint source pollution management program.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package—Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319—collectively known as SGMA, which requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through SGMA, DWR provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. SGMA empowers local agencies to form GSAs to manage basins sustainably and requires those GSPs for crucial (i.e., medium- to high-priority) groundwater basins in California.

California Porter–Cologne Water Quality Control Act

Since 1973, the SWRCB and its nine Regional Water Quality Control Boards (RWQCBs) have been delegated the responsibility of administering permitted discharge into the waters of California. The Porter–Cologne Water Quality Control Act (Porter–Cologne Act) (California Water Code Section 13000 et seq.; 23 CCR Chapters 3 and 15) provides a comprehensive water quality management system to protect California waters. Under the act, "any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State" must file a report of the discharge with the appropriate RWQCB. Pursuant to the act, the RWQCB may then prescribe "waste discharge requirements" that add conditions related to control of the discharge. The Porter–Cologne Act defines "waste" broadly, and the term has been applied to a diverse array of materials, including non-point source pollution. When regulating discharges that are included in the federal CWA, California essentially treats Waste Discharge Requirements and NPDES as a single permitting vehicle. In April 1991, the SWRCB and other state environmental agencies were incorporated into the EPA.

The RWQCB regulates urban runoff discharges under the NPDES permit regulations. NPDES permitting requirements cover runoff discharged from point (e.g., industrial outfall discharges) and non-point (e.g., stormwater runoff) sources. The RWQCB implements the NPDES Program by issuing construction and industrial discharge permits. Under the NPDES permit regulations, BMPs are required as part of a SWPPP. The EPA defines BMPs as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States." BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage (40 CFR 122.2).

California Antidegradation Policy

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High-Quality Water in California, was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the Federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the state (e.g., isolated wetlands and groundwater), not just surface waters. The policy states that whenever the existing quality of a water body is better than the quality established in individual basin plans, such high quality shall be maintained, and discharges to that water body shall not unreasonably affect present or anticipated beneficial use of such water resources.

California Toxics Rule

The EPA has established water quality criteria for certain toxic substances via the California Toxics Rule. The California Toxics Rule established acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water (e.g., inland surface waters and enclosed bays and estuaries) that are designated by each RWQCB as having beneficial uses protective of aquatic life or human health.

San Luis Reservoir State Recreation Area Resource Management Plan/General Plan

The San Luis Reservoir State Recreation Area Resource Management Plan/General Plan (San Luis Reservoir SRA RMP/GP) was prepared to set forth goals and guidelines for management of the San Luis Reservoir State Recreation Area (SRA) and adjacent lands (known as the Plan Area) for the next 25 years. The 27,000-acre Plan Area includes the water surfaces of San Luis Reservoir, O'Neill Forebay, and Los Banos Creek Reservoir, as well as adjacent recreation lands. The California Department of Parks and Recreation (CDPR), DWR, and the California Department of Fish and Wildlife manage the Plan Area lands, which are owned by the Bureau of Reclamation (Reclamation).

The San Luis Reservoir SRA RMP/GP was developed through an agreement between Reclamation and CDPR to provide coordinated direction for recreation and resource management of the Plan Area lands, while continuing to serve the primary purpose of water storage, water distribution, and power generation. The San Luis Reservoir SRA RMP/GP sets forth Plan Area-wide management goals and guidelines that will be used to implement Plan Area use and future actions and to measure its success (Reclamation and CDPR 2013).

3.1.2.3 Local

Merced County Ordinance No. 1923: Stormwater Ordinance

Merced County Ordinance No. 1923: Stormwater Ordinance outlines water quality policies for Merced County (County) to ensure the health, safety, and general welfare of its citizens and the protection and enhancement of the water quality of watercourses and water bodies in a manner pursuant to and consistent with the CWA. This ordinance would apply to other projects in the area within the jurisdiction of Merced County and is therefore considered in the cumulative impact analysis. Although this ordinance would not regulate federal lands comprising the San Luis Reservoir SRA, the San Luis Reservoir SRA RMP/GP calls for local standards and ordinances to be considered during design and construction of projects within the San Luis Reservoir SRA.

Implementation of the Stormwater Ordinance would protect and enhance water quality by reducing pollutants in stormwater discharges to the maximum extent practicable and by prohibiting non-stormwater discharges to the storm drain system. In compliance with this ordinance, prior to soil disturbance, operators of a construction activity project shall prepare and submit a Sediment Control Plan to the Merced County Department of Public Works for review and approval. However, if a Construction General Permit is required for any given project, the SWPPP may substitute for the required Sediment Control Plan. In that case, the operator of the construction activity project shall submit a copy of the SWPPP to the County for review and approval.

Projects that create and/or replace 5,000 square feet or more of impervious surfaces are considered Regulated Projects. Where a redevelopment project results in an increase of more than 50% of the impervious surface of a previously existing development, the entire site is considered a Regulated Project. Where development results in an increase of less than 50% of impervious surfaces, only runoff from the new and/or replaced impervious surface of the project is considered to be part of a Regulated Project. Operators of Regulated Projects with pollutant generating activities and sources shall implement permanent and/or operation source control BMPs, as applicable. All Regulated Projects shall implement Low Impact Development (LID) standards designed to reduce runoff, treat stormwater, and provide baseline hydromodification management (Merced County 2014).

Northern and Central Delta–Mendota Region GSP

DWR has identified the Delta–Mendota Groundwater Subbasin as being in a state of critical overdraft. GSAs in the subbasin were therefore tasked with developing and submitting one or more GSPs to DWR by no later than January 31, 2020. Six coordinated GSPs have been prepared for the Delta–Mendota Subbasin, including a GSP for the central portion of the subbasin, where the Modified Project site is located. The Northern and Central Delta–Mendota GSP was prepared by the Northern and Central Delta–Mendota Region GSP Group to meet SGMA regulatory requirements while reflecting local needs and preserving local control over water resources. The San Luis & Delta–Mendota Water Authority provides a path to achieve and document sustainable groundwater management within 20 years following GSP adoption, as well as promoting the long-term sustainability of locally managed groundwater resources now and into the future (SLDMWA 2019).

While the Northern and Central Delta–Mendota Region GSP offers a new and significant framework for groundwater resource protection and management, it was developed within an existing framework of comprehensive planning efforts. Throughout the Delta–Mendota Subbasin, several separate yet related planning efforts are concurrently proceeding, including the Integrated Regional Water Management program, Urban Water Management requirements, Agricultural Water Management requirements, Irrigated Lands Regulatory Program, and California Statewide Groundwater Elevation Monitoring program. This GSP has been developed to coordinate with these other planning efforts, building on existing local management and basin characterization (SLDMWA 2019).

Merced Vision 2030 General Plan

As required by state law, Merced County has adopted a general plan to guide land use decisions within the county. The general plan provides goals, policies, standards, and implementation programs to guide the physical development of a county. At a minimum, the general plan must address the topics of land use, transportation, housing, conservation, open space, noise, and safety. The Merced Vision 2030 General Plan (Merced County General Plan), adopted in 2013, has established the year 2030 as the plan's time horizon. The Natural Resource Element contains goals and policies related to erosion control, the Water Element contains goals and policies related to water quality protection, and the Public Facility and Service Funding Element contains goals and policies related to stormwater infrastructure. The following goals and policies would apply to the Modified Project (Merced County 2013b):

Natural Resources Element

Goal NR-3: Facilitate orderly development and extraction of mineral resources while preserving open space, natural resources, and soil resources and avoiding or mitigating significant adverse impacts.

- **Policy NR-3.1:** Soil Protection. Protect soil resources from erosion, contamination, and other effects that substantially reduce their value or lead to the creation of hazards.
- **NR-3.2:** Soil Erosion and Contamination. Require minimal disturbance of vegetation during construction to improve soil stability, reduce erosion, and improve stormwater quality.
- **Policy NR-3.8:** Habitat Restoration and Buffer Incentives. Support and encourage property owners and surface mining operators to pursue one or more of the following incentives:
  - State and Federal habitat restoration funding for restoring wildlife habitat;
  - Conservation easements following reclamation for restoring wildlife habitat; and
  - Other local, State, and Federal incentives.
- **Policy NR-3.9:** Riparian and Critical Habitat Protection. Protect or mitigate, in compliance with local, State, and Federal requirements, areas of riparian vegetation along rivers, streams, and other habitats that support threatened, endangered, or otherwise sensitive species. This shall include:
  - Requiring mining operators that propose mining operations that will have a significant adverse impact on these resources to mitigate to the fullest extent that the California Environmental Quality Act (CEQA) requires for such impacts and obtain the necessary State and Federal permits prior to operation.
  - Encouraging mining operators that impact natural resources to propose an end use that will result in minimal loss of resources

Water Element

Goal W-2: Protect the quality of surface and groundwater resources to meet the needs of all users.

- **Policy W-2.1:** Water Resource Protection. Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these water resources.
- **Policy W-2.2:** Development Regulations to Protect Water Quality. Prepare updated development regulations, such as best management practices, that prevent adverse effects on water resources from construction and development activities.
- **Policy W-2.3:** Natural Drainage Channels. Encourage the use of natural channels for drainage and flood control to benefit water quality and other natural resource values.
- **Policy W-2.7:** NPDES Enforcement Monitor and enforce provisions of the USEPA [U.S. Environmental Protection Agency] NPDES program to control non-point source water pollution.
- **Policy W-2.8:** Water Contamination Protection. Coordinate with the SWRCB, RWQCB, and other responsible agencies to ensure that sources of water contamination (including boron, salt, selenium and other trace element concentrations) do not enter agricultural or domestic water supplies, and will be reduced where water quality is already affected.

Public Facility and Service Funding Element

Goal PFS-3. Ensure the management of stormwater in a safe and environmentally sensitive manner through the provision of adequate storm drainage facilities that protect people, property, and the environment.

- **Policy PFS-3.1**: Stormwater Management Plans. Require stormwater management plans for all Urban Communities to reduce flood risk, protect soils from erosion, control stormwater runoff, and minimize impacts on existing drainage facilities.
- **Policy PFS-3.2:** Stormwater Facilities in New Development. Require that new development in unincorporated communities includes adequate stormwater drainage systems. This includes adequate capture, transport, and detention/retention of stormwater.
- **Policy PFS-3.3:** Community Drainage Systems. Encourage the development of community drainage systems rather than individual project level systems in order to use land more efficiently and protect people, property and the environment in a more comprehensive manner.
- **Policy PFS-3.4:** Agency Coordination. Coordinate with the U.S. Army Corps of Engineers and other appropriate agencies to develop stormwater detention/retention facilities and recharge facilities that enhance flood protection and improve groundwater recharge.
- **Policy PFS-3.5:** Pre-Development Storm Flows. Require on-site detention/retention facilities and velocity reducers when necessary to maintain pre-development storm flows and velocities in natural drainage systems.
- **Policy PFS-3.6:** Retention/Detention Facility. Encourage stormwater detention/retention project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, are visually unobtrusive and, where feasible, provide a natural watercourse appearance and a secondary use, such as recreation.

Goal W-4. Enhance and protect County watersheds through responsible water and land use management practices that address water bodies, open spaces, soils, recreation, habitat, vegetation, groundwater recharge, and development.

- **Policy W-4.1:** Water Resource Protection and Replenishment. Encourage the protection of watersheds, aquifer recharge areas, and areas susceptible to ground and surface water contamination by identifying such areas such as:

  - Consider the implementation of zoning and development regulations to protect water resources;
  - Encourage community drainage systems and contaminant control measures; and
  - Coordinate with other agencies and entities with responsibilities for water quality and watershed protection.
- **Policy W-4.2:** Watershed Program Funding. Support efforts to obtain grant funding for locally sponsored watershed programs, planning efforts, and projects that enhance and protect the watersheds of the County.

3.1.3 Thresholds of Significance

The following significance criteria from the 2019 EIS/EIR are used for the purposes of analysis in this SEIR. These criteria, which have not changed from the 2019 EIS/EIR, are identified in Chapter 4, Water Quality, Chapter 6, Groundwater Resources, and Chapter 9, Flood Protection, of the 2019 EIS/EIR. A significant impact related to water quality and groundwater resources would occur if the Modified Project would:

1. Violate existing water quality standards or waste discharge requirements;
2. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site;
3. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
4. Result in increases in groundwater use that generates a net reduction in groundwater levels that would result in adverse environmental effects;
5. Result in the degradation in groundwater quality such that it would exceed regulatory standards or would substantially impair reasonably anticipated beneficial uses of groundwater;
6. Result in increases in groundwater use that generates permanent/inelastic land subsidence caused by water level declines such that it causes saltwater intrusion that degrades groundwater quality and flooding that damages buildings and infrastructure;
7. Otherwise, substantially degrade existing water quality conditions; or
8. Result in substantial effects on water quality-related beneficial uses.

3.1.4 Impacts Analysis

Threshold 1

Would the Modified Project violate existing water quality standards or waste discharge requirements?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

Construction

Modified Project development would, in part, involve the construction of a new permanent campground on the northwestern shoreline of O'Neill Forebay, as well as improvements to the existing San Luis Creek Day Use Area along the western shoreline. Construction activities associated with these improvements would include vegetation removal and approximately 15 acres of site grading; installation of utilities including sewer, water, and electrical; surfacing roadways and vehicle parking areas with asphalt (less than 1 acre total); and constructing restrooms and associated campground and campsite amenities (e.g., picnic tables, fire rings). As such, the implementation of the Modified Project would result in more intensive use of land compared to existing conditions.

The analysis of potential impacts of construction activities, construction materials, and non-stormwater runoff on water quality during the demolition and construction phase focuses primarily on sediment and certain non-sediment-related pollutants. Construction-related activities that primarily result in sediment releases are related to exposing previously stabilized soils to potential mobilization by rainfall/runoff and wind. Such activities include grading, excavations, and temporary stockpiling of soil. Environmental factors that affect erosion include topographic, soil, and rainfall characteristics.

Erosion and sedimentation affect water quality and interferes with photosynthesis; oxygen exchange; and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages, which could contribute to the degradation of water quality. Furthermore, during grading and temporary soil storage, there is the potential for soil migration off-site via wind (see Section 3.2, Air Quality, for further discussion of construction generated air quality impacts).

Non-sediment-related pollutants that are also of concern during construction relate to construction materials and non-stormwater flows and include construction materials (e.g., paint, stucco); chemicals, liquid products, and petroleum products used in building construction or the maintenance of heavy equipment; and concrete-related pollutants.

Because ground disturbance at the proposed campground and existing day use area would exceed 1.0 acre, grading and construction would be completed in accordance with a Construction General Permit. The Construction General Permit would include a number of design, management, and monitoring requirements for protecting water quality and reducing construction phase impacts related to stormwater (and some non-stormwater) discharges. Permit requirements would include preparing a SWPPP, implementing and monitoring BMPs, implementing the best available technology for toxic and non-conventional pollutants, implementing the best conventional technology for conventional pollutants, and periodic submittal of performance summaries and reports to the CVRWQCB. The SWPPP would include references to major construction areas, materials staging areas, and haul roads. Typical BMPs that could be incorporated into the SWPPP to protect water quality include the following:

- Diverting off-site runoff away from the construction site
- Vegetating landscaped/vegetated swale areas as soon as feasible following grading activities
- Placing perimeter straw wattles to prevent off-site transport of sediment
- Using drop inlet protection (filters and sandbags or straw wattles), with sandbag check dams within paved areas
- Regular watering of exposed soils to control dust during demolition and construction

- Implementing specifications for demolition/construction waste handling and disposal
- Using contained equipment wash-out and vehicle maintenance areas
- Maintaining erosion and sedimentation control measures throughout the construction period
- Stabilizing construction entrances to avoid trucks from imprinting soil and debris onto adjoining roadways
- Training, including for subcontractors, on general site housekeeping

Incorporating required BMPs for materials and waste storage and handling, and equipment and vehicle maintenance and fueling would reduce the potential discharge of polluted runoff from the Modified Project, consistent with the NPDES General Construction Permit. Compliance with existing regulations would prevent violation of water quality standards and minimize the potential for contributing sources of polluted runoff. Therefore, compliance with existing regulations would ensure that demolition and construction activities associated with the proposed campground and redevelopment of the day use area would not violate any water quality standards or waste discharge requirements or substantially degrade surface water quality. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Operations

The proposed campground area currently consists of undeveloped grasslands, while the day use area is currently developed as a recreational facility. Implementation of the Modified Project would, in part, result in the development of a new campground, which would consist of 79 campsites, including 73 tent sites and 6 that are Americans with Disabilities Act (ADA) accessible; two restroom and shower buildings; a campfire center along the northwest shoreline of O'Neill Forebay; and realignment of the bike path along the shore. Comparatively, the improvements to the day use area would result in the development of an additional boat launch lane and boarding float, a fish-cleaning station, and six restroom stalls. Approximately 15 acres would be graded for the campground and day use area combined.

During storm events, pollutants from proposed paved areas (totaling less than 1 acre) without proper stormwater controls and BMPs could be conveyed off site and directly discharged into O'Neill Forebay. Most pollutants flowing off site in this manner would be dust, litter, and possibly residual petroleum products (e.g., motor oil, gasoline, diesel fuel). Certain metals, along with nutrients and pesticides from landscape areas, can also be present in stormwater runoff. Between periods of rainfall, surface pollutants tend to accumulate, and runoff from the first significant storm of the year ("first flush") would likely have the largest concentration of pollutants. Untreated runoff could be transported to O'Neill Forebay and could contribute to the degradation of water quality and impair established beneficial uses. As indicated in Table 3.1-2, Water Quality Impairments for the San Joaquin River watershed, O'Neill Forebay is currently impaired with mercury and polychlorinated biphenyls (PCBs).

Proposed campground and day use area improvements would be designed and constructed in accordance with guidelines and objectives outlined in the San Luis Reservoir SRA RMP/GP to achieve identified goals (Reclamation and CDPR 2013). The following goals and guidelines would be implemented to reduce potential water quality impacts associated with operations of the proposed campground and improved day use area (Reclamation and CDPR 2013):

Goal RES-WQ1: Ensure that existing, new, or increased visitor uses do not adversely affect water quality.

Guideline:

- If DWR water quality monitoring shows exceedances of state water quality standards that are clearly associated with visitor uses, suspend or limit the visitor uses until the water quality standards are met.

Goal RES-WQ2: Avoid access to sensitive watercourses to prevent degradation related to trampling, surface runoff, and sedimentation.

Guidelines:

- Provide key, well-marked visitor access points to wetlands and streams and provide interpretive signage to educate visitors about habitat sensitivity.
- Establish appropriate buffers and site-specific guidelines for siting future campsites and associated facilities away from wetlands and watercourses.
- Provide native plantings for erosion control near degraded shorelines and riparian corridors.

Goal RES-WQ4: Design, construct, and maintain buildings, roads, trails, campsites, boat launches and marinas, and associated infrastructure to minimize stormwater runoff, promote groundwater recharge, and prevent soil erosion.

Guidelines:

- Limit impervious surfaces to minimize runoff; consider the use of permeable materials for new or expanded pedestrian and vehicular surfaces.
- Schedule construction activities, particularly those resulting in substantial soil disturbance, during periods of low precipitation and low groundwater, when feasible, to reduce the risk of accidental hydrocarbon leaks or spills reaching surface and/or groundwater, to reduce the potential for soil contamination, and to minimize erosion of loose materials in construction areas.
- Use silt fences, sedimentation basins, and other control measures to reduce erosion, surface scouring, and discharge to water bodies.

Incorporating LID features and BMPs consistent with CDPR goals and guidelines would ensure that the development of the new campground and day use area improvements would not violate any water quality standards or waste discharge requirements or substantially degrade surface quality from Modified Project operations. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

Construction

The Modified Project has identified two additional borrow areas, Borrow Area 12 and Borrow Area 14, in addition to Borrow Area 6 and the Basalt Hill Borrow Area that were identified as part of the Approved Project in the 2019 EIS/EIR. Borrow Area 12 and Borrow Area 14 are within the overall construction footprint identified by the 2019 EIS/EIR, but were identified in that document and analyzed as anticipated contractor staging areas. Near the Basalt Hill Borrow Area, the Modified Project also includes the addition of a new work area proposed for stockpiling extracted materials prior to transporting the materials to the dam construction zone. Like the larger Basalt Hill Borrow Area, this area, shown in Figure 2-4B, was used to extract materials for the original dam

construction. In addition, an existing access road from Basalt Road would be widened and improved for hauling use as part of the Modified Project.

Excavation, grading, restoration, and stockpiling activities could result in sediment releases related to exposing previously stabilized soils to potential mobilization by rainfall/runoff and wind. As such, the potential for water quality degradation at these sites would be like that described for the construction component of campground construction and day use area improvements. Because ground disturbance at the borrow areas would exceed 1.0 acre, grading and construction would be completed in accordance with a Construction General Permit, which would include preparing a SWPPP, implementing and monitoring BMPs, implementing the best available technology for toxic and non-conventional pollutants, implementing the best conventional technology for conventional pollutants, and periodic submittal of performance summaries and reports to the CVRWQCB. The SWPPP would include references to major construction areas, materials staging areas, and haul roads. For the reasons described above, this element of the Modified Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface quality from demolition and construction activities. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant.**

Operation

Borrow Area 12 consists of an approximately 28-acre grassland hillside about 100 feet higher than the surrounding lower-lying area, while Borrow Area 14 consists of a 200-acre zone situated around four low grassland hills. As previously discussed, the top of Borrow Area 12 is flat, having been used in the past as a borrow area for the initial construction of the dam. Materials extraction at Borrow Areas 12 and 14 are intended to preserve the existing topographic contours of the borrow areas to the greatest extent practicable, with the elevation of the existing hills and ridges being lowered up to 25 feet from their current elevation. If Borrow Area 14 is used, excavation would be minimized at the lower elevations and defined drainage areas between the hills. Up to 7 million cubic yards of material would potentially be removed from these borrow areas. As part of the Modified Project, a remediation plan would be prepared and implemented for these borrow areas, including measures to revegetate and perform final grading to achieve a naturalized appearance and topography and restore impacted drainages to preconstruction conditions. Once construction activities have ceased, use of Borrow Area 12, Borrow Area 14, and the new staging areas would be similar to existing conditions. Therefore, this Modified Project element would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface quality during Modified Project operational activities. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant.**

Minor Additions to Contractor Work Area

Construction

The Modified Project includes minor temporary and permanent expansions of contractor work areas downstream of the dam that were not part of the original study area addressed in the Approved Project. These areas include several staging/soil stockpiling areas downstream of B.F. Sisk Dam that would later be covered by the stability berms and expanded dam embankment, as well as another small area of less than 1 acre immediately west of the dam's right abutment, where a haul road would be widened (Figures 2-4A and 2-4B). Construction activities, including minor grading activities (estimated 2 to 10 acres of grading), use of heavy machinery, and stockpiling of soils in the expanded contractor work areas could result in the inadvertent release of pollutants into the neighboring environment. Like that described for campground construction and day use area improvements, this element of the Modified Project would comply with existing regulations to ensure that the expansion of the contractor work

areas would not violate any water quality standards or waste discharge requirements or substantially degrade surface quality from construction activities. Grading would be completed in accordance with a Construction General Permit, which would include preparing a SWPPP, implementing and monitoring BMPs, implementing the best available technology for toxic and non-conventional pollutants, implementing the best conventional technology for conventional pollutants, and periodic submittal of performance summaries and reports to the CVRWQCB. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant.**

Operation

Contractor work areas would predominately be used for soil stockpiling and overnight parking, fueling, and heavy equipment maintenance. While minor grading may be necessary at some of these sites, no structures are proposed to be built at these locations. As such, the potential for inadvertent release of pollutants during operational activities within these areas would be like that described for changes in borrow area location. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

Construction

Stability berms would be constructed along the downstream side of the dam to raise the dam crest 12 feet and increase the reservoir's freeboard, or the distance between the water surface and the dam crest. Construction of these stability berms would initially require excavations so that the berm would be keyed into the underlying bedrock. Dewatering is anticipated to entail installing temporary deeper wells and shallower well points installed around each work area requiring dewatering. Water removed from the excavation during this period would be pumped into temporary settling ponds or portable tanks to allow sediment to drop out and meet permit water quality standards before being discharged into the reservoir or forebay. Dewatering would be subject to permitting approval by the CVRWQCB. Any potentially contaminated groundwater in dewatering wells associated with incidental spills from heavy equipment would not be discharged into the reservoir or forebay (See Section 3.8, Hazards and Hazardous Materials, for additional information regarding groundwater contamination). As a result, this element of the Modified Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface quality from construction activities. These additional construction assumptions, which were not included in the Approved Project, would result in **less-than-significant** impacts related to Modified Project water quality.

Operations

The stability berms would be finished upon Modified Project operations and no permanent dewatering would be required. As such, this element of the Modified Project would not violate any water quality standards or waste discharge requirements or substantially degrade surface quality. These additional construction assumptions, which were not included in the Approved Project, would result in **no impacts** related to Modified Project water quality.

Cumulative Impacts

Potential soil erosion from each cumulative project site could combine to cause potentially significant cumulative water quality impacts due to sedimentation of downstream water bodies. Cumulative development and redevelopment within the San Joaquin River watershed would potentially result in short-term erosion-related impacts during construction and long-term erosion related to denuded soil, improper drainage, and lack of erosion

control features at each cumulative project site. Similarly, incidental spills of petroleum products and hazardous materials during construction at each cumulative project site could occur during construction, resulting in cumulative water quality impacts.

Short-term and long-term erosion BMPs and spill control BMPs would be employed at each cumulative site consistent with NPDES stormwater quality regulations, including the Construction General Permit and local MS4 permits. Per the Post-Construction Program, cumulative Regulated Projects within Merced County jurisdiction would be required to incorporate Source Control LID features to reduce on- and off-site runoff, treat stormwater, and provide a baseline for hydromodification management. Cumulative Regulated Projects would be required to incorporate LID BMPs that would evapotranspire, infiltrate, harvest and use, and/or biotreat stormwater to satisfy the point source, volumetric, and flow-based specifications outlined in Ordinance No. 1923, such that impacts would not be cumulatively considerable. In addition, cumulative projects within the San Luis Reservoir SRA would be designed and operated in accordance with CDPR goals and guidelines regarding post-construction stormwater quality. Implementation of these guidelines would minimize off-site transport of pollutants into downstream water bodies. As a result, similar to the Approved Project, cumulative water quality impacts associated with Modified Project soil erosion, incidental spills of hazardous materials, and paving of currently pervious areas would be **less than significant**.

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 2

Would the Modified Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off-site?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

Runoff from the undeveloped campground site infiltrates directly into the underlying permeable soils or sheet flows into O'Neill Forebay. Runoff from the San Luis Creek Day Use Area is conveyed along impermeable surfaces directly into O'Neill Forebay or into unpaved areas, where stormwater is infiltrated. Improvements to the day use area would not substantially alter the existing drainage pattern of the site, as grading would likely be minimal for construction of an additional boat launch lane and boarding float, a fish-cleaning station, and a restroom facility. Modified Project-related disturbance would not occur throughout the entire facility and would be limited to areas receiving the improvements. Although grading for the proposed campground would somewhat alter the internal drainage patterns of the site, substantial alteration of the existing drainage pattern would not occur, as the site would be graded with drainage features (e.g., swales, subsurface drain pipes) that mimic overall existing drainage patterns.

As the proposed campground site is currently undeveloped, development would result in an increase in impervious area (totaling less than 1 acre). This increase in impervious surfaces could increase localized on- and off-site runoff into unpaved areas, potentially resulting in an increase in on-site erosion and associated siltation of the forebay. However, incorporating CDPR's Standard Project Requirements would reduce stormwater runoff volumes and flow rates from the Modified Project site, which in turn would prevent soil erosion and siltation of the forebay. Specifically, energy dissipators would be installed at water discharge points to reduce off-site stormwater runoff rates, thus minimizing erosion (CDPR 2015).

In addition, as discussed for Threshold 1, incorporating LID features and BMPs consistent with CDPR goals and guidelines would reduce stormwater runoff volumes and flow rates from the Modified Project site. which in Specifically, Goal RES-WQ4 outlined in the San Luis Reservoir SRA RMP/GP requires that CDPR design, construct, and maintain buildings, roads, trails, campsites, boat launches, and associated infrastructure to minimize stormwater runoff, promote groundwater recharge, and prevent soil erosion (Reclamation and CDPR 2013). And the guidelines include limiting impervious surfaces to minimize runoff; considering the use of permeable materials for new or expanded pedestrian and vehicular surfaces; and using silt fences, sedimentation basins, and other control measures to reduce erosion, surface scouring, and discharge to water bodies. In addition, Reclamation's Recreation Facility Design Guidelines (Reclamation 2013) include recommendations to minimize erosion when designing campground layout and creating new trails.

Therefore, compliance with CDPR's Standard Project Requirements, CDPR goals and guidelines, and Reclamation's Recreation Facility Design Guidelines would ensure that the development of the new campground and day use area improvements would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site. Similar to the Approved Project, drainage and water quality impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

Currently, runoff from Borrow Area 12, Borrow Area 14, and the newly identified staging area near Basalt Hill directly infiltrates into the underlying permeable soils. Precipitation that does not infiltrate into on-site soils generates sheet flow runoff into adjacent areas before eventually draining to O'Neill Forebay or San Luis Reservoir. Borrow Area 12 is approximately 28 acres and Borrow Area 14 is approximately 200 acres. Although no impervious surfaces are proposed within Borrow Area 12, Borrow Area 14, or the staging area as part of the Modified Project, removal of vegetation in these broad areas would result in an increase in stormwater runoff during the construction period, as existing vegetation reduces runoff velocities, allowing runoff to infiltrate into underlying soils. However, as described for Threshold 1, the Modified Project would implement a SWPPP to establish erosion and sediment control BMPs for construction-related activities. In addition to erosion and sediment control, these BMPs would reduce stormwater runoff velocities, which in turn would minimize the potential for an increase in on- and off-site erosion and siltation rates during the construction period. Typical examples of velocity-inhibiting BMPs include silt fences, gravel bags, and fiber rolls installed around the perimeter and downslope of work areas. These measures would reduce stormwater runoff velocities to the maximum extent practical.

In addition, as part of the Modified Project, a remediation plan would be prepared and implemented for these borrow areas, including measures to revegetate and perform final grading to achieve a naturalized appearance and topography. Revegetation and restoration of the topography similar to the existing slope gradients would result in stormwater runoff velocities and volumes similar to existing conditions. While this element of the Modified Project would somewhat alter the internal drainage patterns of Borrow Areas 12 and 14 as a result of removal of large

quantities of soil and bedrock, such activities would not result in a substantial increase in the rate or amount of runoff, such that substantial erosion or siltation would occur. Similar to the Approved Project, drainage and water quality impacts associated with the Modified Project would be **less than significant**.

Minor Additions to Contractor Work Area

These additional impact areas are unpaved, pervious areas. Precipitation that does not infiltrate into on-site soils generates stormwater runoff that sheet flows into adjacent areas, before eventually draining to O'Neill Forebay. These areas include several staging/soil stockpiling areas downstream of B.F. Sisk Dam that would later be covered by the stability berms and expanded dam embankment, as well as another small area of less than 1 acre immediately west of the dam's right abutment, where a haul road would be widened (Figures 2-4A and 2-4B).

Creation of staging/stockpiling areas involves minimal grading and no paving. However, as described for Borrow Areas 12 and 14, removal of existing vegetation would increase runoff during the construction period. As previously discussed for Threshold 1, a SWPPP would be incorporated into Modified Project development, which would establish erosion and sediment control BMPs, thereby reducing stormwater runoff velocities and minimizing the potential for off-site erosion siltation during the construction period. These measures would reduce stormwater runoff velocities to the maximum extent practical. Revegetation following construction would not be required, as proposed stability berms would be constructed over these additional impact areas. This element of the Modified Project would not substantially alter the drainage patterns of these staging/stockpiling areas, and it would not result in a substantial increase in the rate or amount of runoff, such that substantial erosion or siltation occurs. Similar to the Approved Project, drainage and water quality impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

Additional construction assumptions include changes to the construction schedule, equipment and personnel specifications, and dewatering specifications for proposed excavations at the base of the dam. These Modified Project components would have no relevance to increased runoff, erosion, and/or siltation. As such, this element of the Modified Project would not substantially alter the drainage patterns of the Modified Project site or area, or result in a substantial increase in erosion or siltation rates. These additional construction assumptions, which were not included in the Approved Project, would result in **no impacts** related to Modified Project drainage and water quality.

Cumulative Impacts

Potential increased stormwater runoff from each cumulative project site could combine to cause potentially significant cumulative water quality impacts due to erosive scour and sedimentation of downstream water bodies. Cumulative development and redevelopment within the San Joaquin River watershed would potentially result in long-term erosion related to denuded soil, improper drainage, and lack of LID features at each cumulative project site. However, construction projects in excess of 1.0 acre would require implementation of a SWPPP, thus reducing off-site runoff velocities during construction. In addition, per the Merced County Post-Construction Program, cumulative Regulated Projects within Merced County jurisdiction would be required to incorporate Source Control LID features to reduce on- and off-site runoff, thus reducing erosive scour and sedimentation of downstream water bodies. Cumulative Regulated Projects would be required to incorporate LID BMPs that would evapotranspire, infiltrate, harvest and use, and/or biotreat stormwater to satisfy the point source, volumetric, and flow-based specifications outlined in Ordinance No. 1923, such that impacts would not be cumulatively considerable. Similarly, cumulative projects located outside of Merced County jurisdiction would be subject to local MS4 regulations, which

include incorporation of LID features to minimize increased runoff due to new impervious areas. In addition, cumulative projects within the San Luis Reservoir SRA, would be designed and operated in accordance with CDPR's Standard Project Requirements, CDPR goals and guidelines, and Reclamation's Recreation Facility Design Guidelines regarding post-construction stormwater runoff and associated erosion. Implementation of these guidelines would minimize off-site transport of sediments into downstream water bodies. As a result, similar to the Approved Project, cumulative water quality impacts related to Modified Project increased runoff and associated soil erosion would be **less than significant**.

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 3

Would the Modified Project create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

As previously discussed for Threshold 2, the proposed new campground and improvements at the San Luis Creek Day Use Area would increase impervious surfaces (up to 1.0 acre combined), which could result in an increase in localized on-site runoff into unpaved areas within the Modified Project site and O'Neill Forebay. Because runoff would drain directly into the forebay, the proposed new campground and improved day use area would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. With respect to sources of polluted runoff, an increase in runoff could result in erosion in unpaved areas and associated siltation of the forebay. However, incorporating required LID features would reduce stormwater runoff volumes and flow rates from Modified Project sites, consistent with CDPR's Standard Project Requirements, CDPR goals and guidelines, and Reclamation's Recreation Facility Design Guidelines. Compliance with these goals and guidelines would prevent increased runoff, soil erosion, and siltation of the forebay associated with an increase in impervious surfaces. Therefore, development of the new campground and improved day use area would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Similar to the Approved Project, drainage and water quality impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

As previously described for Threshold 2, although no impervious surfaces are proposed within Borrow Area 12, Borrow Area 14, or the staging area as part of the Modified Project, removal of vegetation in these large areas would result in an increase in stormwater runoff during the construction period. However, in compliance with Construction General Permit requirements, a SWPPP would reduce stormwater runoff velocities, which in turn would

minimize the potential for impacts to downstream planned stormwater drainage systems between the borrow areas and O'Neill Forebay during the construction period. These measures would reduce stormwater runoff velocities to the maximum extent practical.

In addition, as part of the Modified Project, a remediation plan would be prepared and implemented for these borrow areas, including measures to revegetate and perform final grading to achieve a naturalized appearance and topography. Revegetation and restoration of the topography similar to the existing slope gradients would result in stormwater runoff velocities and volumes similar to existing conditions. While this element of the Modified Project would temporarily alter the drainage patterns of the borrow areas as a result of removal of large quantities of soil and bedrock, such activities would not result in the creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Moreover, no additional sources of pollutants would be introduced from this element of the Modified Project. Similar to the Approved Project, drainage and water quality impacts associated with the Modified Project would be **less than significant.**

Minor Additions to Contractor Work Area

As previously discussed for Threshold 2, these additional impact areas are unpaved, pervious areas. Creation of staging/stockpiling areas involves minimal grading and no paving. However, as described for Borrow Areas 12 and 14, removal of existing vegetation would result in an increase in runoff during the construction period. In compliance with Construction General Permit requirements, a SWPPP would establish erosion and sediment control BMPs, which would also reduce stormwater runoff velocities and minimize the potential for adverse impacts to downstream stormwater drainage systems between the borrow areas and O'Neill Forebay during the construction period. These measures would reduce stormwater runoff velocities to the maximum extent practical. Revegetation following construction would not be required, as proposed stability berms would be constructed over these additional impact areas. Therefore, this element of the Modified Project would not result in the creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Moreover, no additional sources of pollutants would be introduced from this element of the Modified Project. Similar to the Approved Project, drainage and water quality impacts associated with the Modified Project would be **less than significant.**

Additional Construction Assumptions

Additional construction assumptions include changes to the construction schedule, equipment and personnel specifications, and dewatering specifications for proposed excavations at the base of the dam. These Modified Project components would have no relevance to increased runoff and impacts to downstream storm drains. As such, this element of the Modified Project would not result in the creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems. These additional construction assumptions, which were not included in the Approved Project, would result in **no impacts** related to Modified Project drainage and water quality.

Cumulative Impacts

Potential increased stormwater runoff from each cumulative project site could combine to cause flooding within downstream drainages and water bodies. However, construction projects in excess of 1.0 acre would require implementation of a SWPPP, thus reducing off-site runoff velocities during construction. Per the Post-Construction Program, cumulative Regulated Projects within Merced County jurisdiction would be required to incorporate Source Control LID features to reduce on- and off-site runoff, thereby reducing the potential for

flooding within downstream drainages and water bodies. Cumulative Regulated Projects would be required to incorporate LID BMPs that would evapotranspire, infiltrate, harvest and use, and/or biotreat stormwater to satisfy the point source, volumetric, and flow-based specifications outlined in Ordinance No. 1923, such that impacts would not be cumulatively considerable. Similarly, cumulative projects located outside of Merced County jurisdiction would be subject to local MS4 regulations, which include incorporation of LID features to minimize increased runoff due to new impervious areas. In addition, cumulative projects within the San Luis Reservoir SRA, as well as adjacent lands owned by Reclamation and managed by CDPR, would be designed and operated in accordance with CDPR's Standard Project Requirements, CDPR goals and guidelines, and Reclamation's Recreation Facility Design Guidelines regarding post-construction stormwater runoff and associated water quality impacts. Implementation of these guidelines would minimize off-site transport of pollutants and sediments into downstream water bodies. As a result, similar to the Approved Project, cumulative drainage impacts related to Modified Project increased runoff would be **less than significant**.

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 4

Would the Modified Project result in increases in groundwater use that generates a net reduction in groundwater levels that would result in adverse environmental effects?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

As previously discussed, portions of the proposed campground and existing day use area are underlain by the northern and central portion of the Delta–Mendota Groundwater Subbasin (Figure 3.1-2). In accordance with SGMA, DWR has classified the Delta–Mendota Subbasin as a high priority in regard to prioritizing the completion of a GSP. As such, in June 2017, 24 GSAs formed within the subbasin to oversee the development and implementation of regional GSPs, with the ultimate goal of achieving sustainable management of the Delta–Mendota Subbasin. As of 2019, a GSP has been completed for the northern and central portions of the subbasin, which includes portions of the proposed campground area and existing San Luis Creek Day Use Area.

The existing San Luis Creek Day Use Area uses surface water for daily operations. The water is treated at an on-site water treatment plant prior to use. Water demand would not likely increase as a result of the Modified Project, as the proposed restrooms would replace existing restrooms. In addition, replacement of existing toilets and sinks with modern, more water-efficient toilets and sinks could result in an overall water savings.

The water demand for the existing San Luis Creek Day Use Area and other campgrounds adjacent to San Luis Reservoir is approximately 1.0 million gallons per month. Based on this water use, the estimated water demand for the proposed campground would be 310,000 gallons per month. It is unclear whether the existing water system

would be able to provide this additional water demand. A concept study will be completed by May 2021 to determine if the existing water system would be capable of accommodating the proposed campground water demand. In the event that an additional water supply is required, a groundwater supply well would be completed for the proposed campground (Heberling, pers. comm. 2020).

In the event that groundwater is used to supplement the water supply for the proposed campground, such groundwater extractions would be completed under the guidance of the Delta–Mendota Subbasin GSP, which would ensure sustainability of the basin. DWR has identified sustainability indicators, which refer to adverse effects caused by groundwater conditions occurring throughout the subbasin that, when significant and unreasonable, cause undesirable results. The six sustainability indicators identified by DWR are as follows:

1. Chronic lowering of groundwater levels
2. Reduction of groundwater storage
3. Seawater intrusion
4. Degraded water quality
5. Land subsidence
6. Depletions of interconnected surface water

Minimum thresholds have been established for each above listed sustainability indicator to define when undesirable results occur. In addition, the Delta–Mendota Subbasin GSP establishes measurable objectives (i.e., a specific set of quantifiable goals for the maintenance or improvement of groundwater conditions) for the Delta–Mendota Subbasin. Representative monitoring wells have been identified throughout the subbasin to provide a basis for measuring groundwater conditions and identifying potentially undesirable results. A total of 35 representative wells (17 in the Upper Aquifer and 18 in the Lower Aquifer) have been identified for measurement of groundwater levels, change in groundwater storage, and groundwater quality, with two representative wells selected for measurement of depletions of interconnected surface water. A total of 31 representative sites were selected for the measurement of land subsidence (SLDMWA 2019).

The Northern and Central Delta–Mendota Region GSP has identified projects that can either replace (offset) or supplement (recharge) groundwater to aid in reaching sustainability by 2040. Currently, no pumping restrictions have been proposed for the Northern and Central Delta–Mendota Regions; however, GSAs maintain the flexibility to implement such demand-side management actions in the future if needed. Management activities identified in the Northern and Central Delta–Mendota GSP include a variety of strategies, from implementing rules to limit pumping that may result in undesirable results, to maximizing the use of other water supplies and incentivizing the use of those supplies over groundwater. A list of 25 potential projects and management actions is included in the GSP, representing a variety of projects, including recharge and recovery, demand-side management, recycled water development and use, and reservoir expansion (SLDMWA 2019).

As such, groundwater extraction in this region would be actively monitored to ensure that a substantial net reduction in groundwater levels does not occur. In the event that groundwater is used to supplement the water supply for the proposed campground, such groundwater extractions would be completed under the guidance of the Delta–Mendota Subbasin GSP. Therefore, this element of the Modified Project would not result in an increase in groundwater use that generates a net reduction in groundwater levels that would result in adverse environmental effects. Similar to the Approved Project, groundwater impacts associated with the Modified Project would be considered **less than significant**.

Changes in Borrow Area Location

As previously discussed, the Modified Project may include soil and bedrock extraction from Borrow Areas 12 and 14, as well as use of a new soil stockpiling area near the Basalt Hill Borrow Area. No groundwater would be used

for construction or operational activities at Borrow Area 12, Borrow Area 14, or the new stockpiling area. Surface water would be used for dust control purposes. Therefore, this element of the Modified Project would not result in an increase in groundwater use that generates a net reduction in groundwater levels that would result in adverse environmental effects. Similar to the Approved Project, groundwater impacts associated with the Modified Project would be **less than significant**.

Minor Additions to Contractor Work Area

The Modified Project includes minor temporary and permanent expansions of contractor work areas downstream of the dam that were not part of the original study area addressed in the Approved Project. These areas include several staging/soil stockpiling areas downstream of B.F. Sisk Dam that would later be covered by the stability berms and expanded dam embankment, as well as another small area of less than 1 acre immediately west of the dam's right abutment, where a haul road would be widened (Figures 2-4A and 2-4B). No groundwater would be used in the additional impact areas of the contractor work areas. Surface water would be used for dust control purposes. Therefore, this element of the Modified Project would not result in an increase in groundwater use that generates a net reduction in groundwater levels that would result in adverse environmental effects. Similar to the Approved Project, groundwater impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

As previously discussed, stability berms would be constructed along the downstream side of the dam to raise the dam crest 12 feet and increase the reservoir's freeboard, or the distance between the water surface and the dam crest. Construction of these stability berms would initially require excavations so that the berm would be keyed into the underlying bedrock. Dewatering would be required in these excavations at the base of the dam. Dewatering activities would be temporary, limited in scope, and negligible on a regional aquifer scale. Therefore, this element of the Modified Project would not result in an increase in groundwater use that generates a net reduction in groundwater levels that would result in adverse environmental effects. These additional construction assumptions, which were not included in the Approved Project, would result in **less-than-significant** impacts related to Modified Project groundwater conditions.

Cumulative Impacts

As previously discussed, SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. SGMA empowers local agencies to form GSAs to manage basins sustainably and requires GSPs for crucial (i.e., medium- to high-priority) groundwater basins in California. In the event that groundwater is used to support cumulative projects in a basin that has been identified as high or medium priority, such groundwater extractions would be completed under the guidance of a GSP, which would ensure sustainability of the underlying groundwater basin. DWR has identified sustainability indicators that, when significant and unreasonable, cause undesirable results; these indicators include chronic lowering of groundwater levels. Minimum thresholds would be (or have been) established for groundwater levels to define when undesirable results occur within basins underlying each cumulative project. In addition, measurable objectives (i.e., a specific set of quantifiable goals for the maintenance or improvement of groundwater conditions) would be (or have been) established for each high- and medium-priority basin. Specific to the Delta–Mendota Subbasin, cumulative groundwater level impacts would only potentially occur for cumulative projects that similarly draw groundwater from the same subbasin. However,

because groundwater extractions for those projects would similarly be completed under the guidance of the GSP, cumulatively considerable impacts would not occur with respect to groundwater levels. Similarly, with implementation of the SGMA process throughout each of the groundwater basins underlying cumulative project areas, impacts associated with potential chronic lowering of groundwater levels would not be cumulatively considerable. As a result, similar to the Approved Project, cumulative groundwater impacts associated with the Modified Project would be **less than significant.**

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 5

Would the Modified Project result in the degradation in groundwater quality such that it would exceed regulatory standards or would substantially impair reasonably anticipated beneficial uses of groundwater?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

As previously discussed for Threshold 4, the newly proposed campground and existing San Luis Creek Day Use Area are in the Northern and Central Delta–Mendota GSP jurisdictional boundaries. According to the GSP, this subbasin is used to offset water demands for the area not met by surface water from the San Joaquin River, Central Valley Project, and California State Water Project, as well as is the primary water supply for many communities in the region. Primary constituents of concern within the Northern and Central Delta–Mendota regions include nitrate, total dissolved solids, and boron, which have anthropogenic and natural sources.

Campground construction and day use area improvements would not introduce additional pollutants to groundwater and potentially degrade beneficial groundwater uses beneath the sites. As discussed for Threshold 4, groundwater usage and quality within the Northern and Central Delta–Mendota GSP jurisdictional boundaries would be actively monitored and regulated, ensuring the long-term sustainability of beneficial uses within the subbasin. Furthermore, the Modified Project would implement a SWPPP, stormwater BMPs, and LID design features, which would minimize the inadvertent release of pollutants on and off site, thereby protecting both surface and groundwater quality. As such, this element of the Modified Project would not result in the degradation in groundwater quality such that it would exceed regulatory standards or substantially impair reasonably anticipated beneficial uses of groundwater. Similar to the Approved Project, groundwater quality impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

Extraction, grading, transportation, and stockpiling of sediment within Borrow Area 12, Borrow Area 14, and the newly proposed staging areas would comply with all applicable water quality regulatory requirements like those

described for Threshold 1. Furthermore, this element of the Modified Project would not require groundwater use during construction or operational use. Surface water would be used for dust control purposes. As such, this element of the Modified Project would not result in the degradation in groundwater quality or substantially impair reasonably anticipated beneficial uses of groundwater. Similar to the Approved Project, groundwater quality impacts associated with the Modified Project would be **less than significant**.

Minor Additions to Contractor Work Area

Construction activities within the minor additions to contractor work areas would comply with all applicable water quality regulatory requirements like those described for Threshold 1. Furthermore, this element of the Modified Project would not require groundwater use during construction or operational use. Surface water would be used for dust control purposes. As such, this element of the Modified Project would not result in the degradation in groundwater quality or substantially impair reasonably anticipated beneficial uses of groundwater. Similar to the Approved Project, groundwater quality impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

Excavation and dewatering activities at the base of the dam would comply with all applicable water quality regulatory requirements, as described for Threshold 1. As such, this element of the Modified Project would not result in the degradation in groundwater quality or substantially impair reasonably anticipated beneficial uses of groundwater. These additional construction assumptions, which were not included in the Approved Project, would result in **less-than-significant** impacts related to Modified Project groundwater quality.

Cumulative Impacts

As discussed for Threshold 4, in the event that groundwater is used to support cumulative projects in high- to medium-priority basins, such groundwater extractions would be completed under the guidance of a GSP, which would ensure sustainability of the underlying groundwater basin. DWR has identified sustainability indicators that, when significant and unreasonable, cause undesirable results; these indicators include degraded water quality. Minimum thresholds would be (or have been) established for groundwater quality to define when undesirable results occur within basins underlying each cumulative project. In addition, measurable objectives would be (or have been) established for each basin. With implementation of the SGMA process throughout each of the groundwater basins underlying cumulative project areas, groundwater quality impacts would not be cumulatively considerable. As a result, similar to the Approved Project, cumulative Modified Project impacts related to groundwater quality would be **less than significant.**

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 6

Would the Modified Project result in increases in groundwater use that generates permanent/inelastic land subsidence caused by water level declines such that it causes saltwater intrusion that degrades groundwater quality and flooding that damages buildings and infrastructure?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

As discussed in Section 3.1.1, Existing Conditions, land subsidence is a prevalent issue in the Delta–Mendota Subbasin; it has impacted prominent infrastructure of statewide importance (i.e., the DMC and California Aqueduct), as well as local canals, causing serious operational, maintenance, and construction-design issues. Reduced freeboard and flow capacity for the DMC and California Aqueduct have rippling effects on imported water availability throughout California. Even small amounts of subsidence in critical locations, especially where canal gradients are small, can impact canal operations. Differential land subsidence can also result in piping ruptures, resulting in loss of water or other substances. While subsidence is poised to be a long-lasting issue for the San Joaquin Valley, recorded subsidence rates for portions of the Modified Project site located within the Delta–Mendota Subbasin were less than 0.15 feet per year, from December 2011 to December 2014. Other sources (Merced County 2012; USGS 2020) indicate no recorded instances of subsidence have occurred within the Modified Project area as a result of groundwater pumping, peat loss, or oil extraction, as the Modified Project is located along the western boundary of the Delta–Mendota Subbasin. As such, there is a low potential for subsidence to occur within the Modified Project area.

As previously discussed for Threshold 4, the proposed campground and existing San Luis Creek Day Use Area are in the Northern and Central Delta–Mendota GSP jurisdictional boundaries. Potential groundwater withdrawals to support the proposed campground would not exacerbate the potential for ground subsidence to occur, as the subbasin would be actively monitored and regulated in accordance with the GSP, ensuring the long-term sustainability of beneficial uses within the subbasin. The GSP includes land subsidence as one of the sustainability indicators in maintaining the sustainability of the subbasin. As such, this element of the Modified Project would not result in an increase in groundwater use that generates permanent/inelastic land subsidence caused by water level declines. Similar to the Approved Project, subsidence impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

As previously discussed, groundwater would not be used during material extraction, grading, restoration, temporary soil storage, or equipment staging activities related to the use of Borrow Area 12, Borrow Area 14, or the newly proposed staging area. Rather, surface water would be used for dust control purposes. As a result, construction and operational activities within these areas would not inadvertently cause a decline in groundwater such that flooding occurs on site. As such, this element of the Modified Project would not result in an increase in groundwater use that generates permanent/inelastic land subsidence caused by water level declines such that it causes flooding that damages buildings and infrastructure. These additional construction assumptions, which were not included in the Approved Project, would result in **less-than-significant** impacts related to Modified Project-induced subsidence.

Minor Additions to Contractor Work Area

As previously discussed, minor additions to contractor work areas would include several staging/soil stockpiling areas downstream of B.F. Sisk Dam that would later be covered by the stability berms and expanded dam embankment, as well as another small area of less than 1.0 acre immediately west of the dam's right abutment, where a haul road would be widened (Figures 2-4A and 2-4B). Surface water would be used for dust control

purposes in these areas. As a result, construction activities within these areas would not inadvertently cause a decline in groundwater such that subsidence and associated flooding occurs on site. Therefore, this element of the Modified Project would not result in an increase in groundwater use that generates permanent/inelastic land subsidence caused by water level declines such that it causes flooding that damages buildings and infrastructure. Similar to the Approved Project, subsidence impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

As previously discussed, temporary dewatering activities would occur at the base of the dam related to the installation of the stability berms and the expanded dam embankment. However, dewatering would be temporary, limited in scope, and negligible on a regional aquifer scale. Moreover, once construction activities have ceased, this element of the Modified Project would not require the use of groundwater. As such, this element of the Modified Project would not result in an increase in groundwater use that generates permanent/inelastic land subsidence caused by water level declines such that it causes flooding that damages buildings and infrastructure. Similar to the Approved Project, subsidence impacts associated with the Modified Project would be **less than significant**.

Cumulative Impacts

As discussed for Threshold 4, in the event that groundwater is used to support cumulative projects in high- to medium-priority basins, such groundwater extractions would be completed under the guidance of a GSP, which would ensure sustainability of the underlying groundwater basin. DWR has identified sustainability indicators that, when significant and unreasonable, cause undesirable results; these indicators include subsidence. Minimum thresholds would be (or have been) established for subsidence to define when undesirable results occur within basins underlying each cumulative project. In addition, measurable objectives would be (or have been) established for each basin. With implementation of the SGMA process throughout each of the groundwater basins underlying cumulative project areas, subsidence impacts would not be cumulatively considerable. As a result, similar to the Approved Project, cumulative Modified Project impacts related to ground subsidence would be **less than significant.**

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 7

Would the Modified Project otherwise substantially degrade existing water quality conditions?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

As previously discussed for Threshold 1, the Modified Project would comply with CDPR guidelines and applicable water quality regulatory requirements, including implementing a SWPPP, stormwater BMPs, and LID design, which would minimize the potential off-site surface water quality impacts and contribute to an improvement in water quality within the San Joaquin River watershed. In addition, compliance with these regulatory requirements would ensure that the Modified Project does not impair existing and potential beneficial uses of key surface water drainages downstream of the proposed campground and existing day use area, including O'Neill Forebay and the San Joaquin River. As a result, this element of the Modified Project would not otherwise substantially degrade existing water quality conditions. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

Extraction and transportation of sediment from Borrow Area 12, Borrow Area 14, and temporary soil stockpiling at the proposed staging area would comply with all applicable water quality regulatory requirements, like those described for campground construction and day use area improvements. For the reasons described above, this element of the Modified Project would not otherwise substantially degrade existing water quality conditions. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Minor Additions to Contractor Work Area

Construction activities within the minor additions to contractor work areas would comply with all applicable water quality regulatory requirements, like those described for campground construction and day use area improvements. For the reasons described above, this element of the Modified Project would not otherwise substantially degrade existing water quality conditions. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

Excavation and dewatering activities at the base of the dam would comply with all applicable water quality regulatory requirements, like those described for campground construction and day use area improvements. For the reasons described above, this element of the Modified Project would not otherwise substantially degrade existing water quality conditions. These additional construction assumptions, which were not included in the Approved Project, would result in **less-than-significant** impacts related to Modified Project water quality.

Cumulative Impacts

As described for Threshold 1, short-term and long-term erosion BMPs and spill control BMPs would be employed at each cumulative project site consistent with NPDES stormwater quality regulations, including the Construction General Permit and local MS4 permits. Cumulative Regulated Projects within Merced County jurisdiction would be required to incorporate LID BMPs that would evapotranspire, infiltrate, harvest and use, and/or biotreat stormwater to satisfy the point source, volumetric, and flow-based specifications outlined in Ordinance No. 1923. In addition, cumulative projects within the San Luis Reservoir SRA, as well as adjacent lands owned by Reclamation and managed by CDPR, would be designed and operated in accordance with CDPR goals and guidelines regarding post-construction stormwater quality. As a result, impacts would not be cumulatively considerable and similar to the Approved Project, cumulative Modified Project water quality impacts would be **less than significant**.

Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

Threshold 8

Would the Modified Project result in substantial effects on water quality-related beneficial uses?

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Campground Construction and Day Use Area Improvements

Beneficial uses of water bodies and watercourse in the vicinity of and downstream of the Modified Project site are included in Table 3.1-1, Beneficial Uses. As previously discussed for Threshold 1, development of the proposed campground and improvement of the San Luis Creek Day Use Area could inadvertently result in the release of pollutants into nearby waterways, potentially contributing to the degradation of the beneficial uses for nearby water bodies. However, the Modified Project would comply with applicable water quality regulatory requirements and CDPR guidelines, including the implementation of a SWPPP, stormwater BMPs, and LID design, which would minimize potential off-site surface water quality impacts and associated impacts to water quality–related beneficial uses. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Changes in Borrow Area Location

As previously discussed, material extraction, transportation, and stockpiling activities within Borrow Area 12, Borrow Area 14, and the newly proposed staging area would comply with all applicable water quality regulatory requirements, like those described for campground construction and day use area improvements. For the reasons described above, this element of the Modified Project would not substantially affect water quality–related beneficial uses. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Minor Additions to Contractor Work Area

As previously discussed, construction activities within the minor additions to contractor work areas would comply with all applicable water quality regulatory requirements, like those described for campground construction and day use area improvements. For the reasons described above, this element of the Modified Project would not result in substantial effects on water quality–related beneficial uses. Similar to the Approved Project, water quality impacts associated with the Modified Project would be **less than significant**.

Additional Construction Assumptions

Excavation and dewatering activities at the base of the dam would comply with all applicable water quality regulatory requirements, like those described for campground construction and day use area improvements. For the reasons described above, this element of the Modified Project would not result in substantial effects on water quality–related beneficial uses. These additional construction assumptions, which were not included in the Approved Project, would result in **less-than-significant** impacts related to Modified Project water quality and beneficial uses.

Cumulative Impacts

As described for Threshold 1, the Modified Project, in combination with cumulative projects, could inadvertently result in the release of pollutants into nearby waterways, potentially contributing to the cumulative degradation of the beneficial uses for nearby water bodies. However, the Modified Project and all cumulative projects would comply with applicable water quality regulatory requirements and applicable CDPR guidelines, including the implementation of a SWPPP, stormwater BMPs, and LID design (as applicable), which would minimize potential off-site surface water quality impacts that contribute to a reduction in water quality–related beneficial uses. As a result, similar to the Approved Project, cumulative Modified Project water quality impacts would be **less than significant**.

Comparison to 2019 EIS/EIR

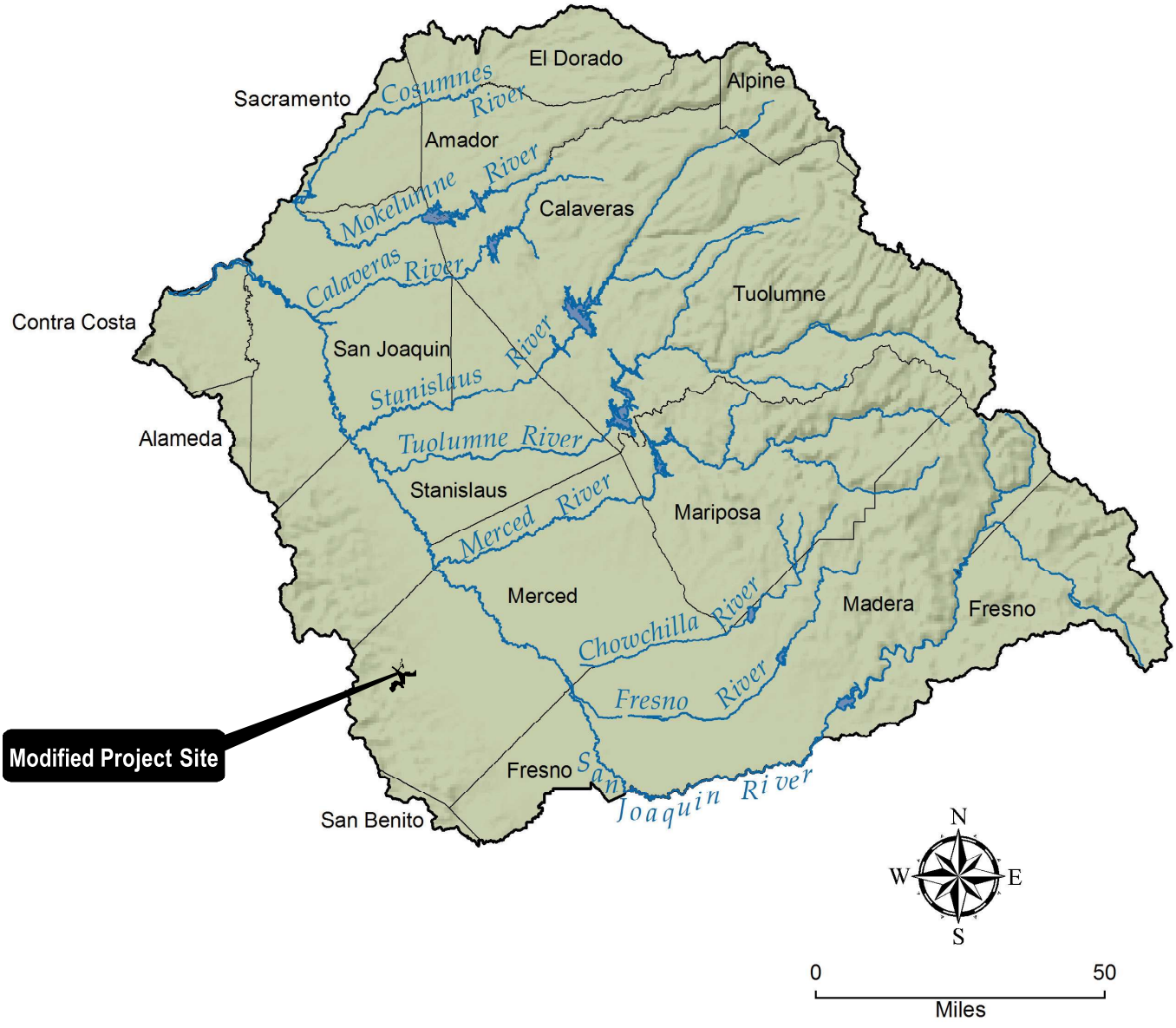
The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

3.1.5 Mitigation Measures

No mitigation measures are required as impacts would be less than significant.

3.1.6 Level of Significance After Mitigation

Impacts regarding water quality, stormwater runoff, and groundwater from the Modified Project were determined to be less than significant without mitigation. Therefore, no mitigation measures are required, and impacts for the Modified Project would remain less than significant.



SOURCE: CVRWQCB 2019

FIGURE 3.1-1

San Joaquin River Watershed

B.F. Sisk Dam Safety of Dams Modification Project SEIR

DUDEK

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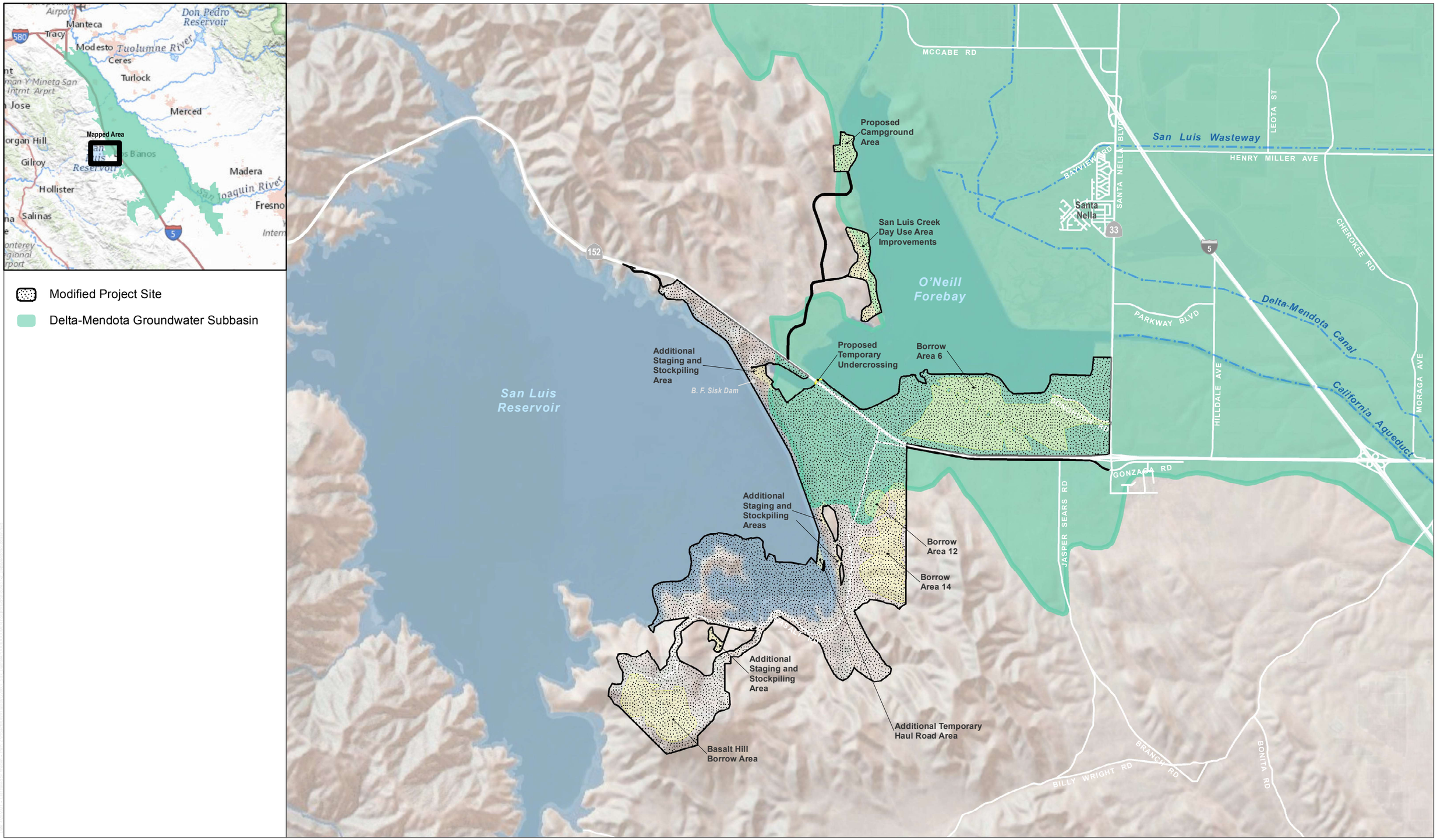

SOURCE: DWR 2020

DUDEK

0 2,300 4,600 Feet

FIGURE 3.1-2

Delta-Mendota Groundwater Subbasin

B.F. Sisk Dam Safety of Dams Modification Project SEIR

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