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# DEVIL CANYON PROJECT RELICENSING FERC PROJECT NUMBER 14797



## EROSION AND SEDIMENT CONTROL PLAN November 2019

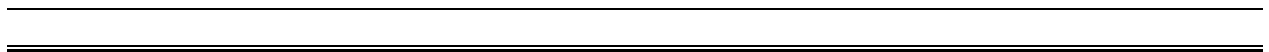


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## TABLE OF CONTENTS

1.0	INTRODUCTION .....	1-1
1.1	Background.....	1-1
1.1.1	Brief Description of the Project.....	1-1
1.2	Purpose of the Plan .....	1-5
1.3	Goals and Objectives of the Plan.....	1-5
1.4	Contents of the Plan .....	1-5
2.0	METHODS FOR MINIMIZATION OF EROSION AND SEDIMENTATION DURING CONTINUED PROJECT OPERATION AND MAINTENANCE.....	2-1
2.1	Overall Erosion and Sediment Control Planning Process for the Devil Canyon Project .....	2-1
2.2	Measures Related to New Construction.....	2-3
2.3	Measures Related to Routine Maintenance on National Forest System Lands .....	2-5
2.4	Measures Related to Other Emergency Erosion Control Events .....	2-6
2.5	Monitoring of Erosion and Sediment Control Activities .....	2-6
3.0	CONSULTATION, REPORTING, AND PLAN REVISIONS .....	3-1
3.1	Consultation and Reporting .....	3-1
3.2	Plan Revisions .....	3-1
4.0	REFERENCES CITED .....	4-1

## LIST OF FIGURES

Figure 1.1-1.	Devil Canyon Project Vicinity .....	1-3
Figure 1.1-2.	Devil Canyon Project Boundary .....	1-4
Figure 2.1-1.	Erosion and Sediment Control Plan Process Flow Chart.....	2-2

## LIST OF TABLES

Table 2.2-1.	General List of Best Management Practices for Erosion and Sediment Control at Construction Sites .....	2-4
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## COMMONLY USED TERMS, ACRONYMS AND ABBREVIATIONS

Application for New License	DWR's Application for a New License for Major Project – Existing Dam for the Devil Canyon Project Relicensing, FERC Project Number 14797
BMP	Best Management Practice
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
DWR	California Department of Water Resources
FERC	Federal Energy Regulatory Commission
LRWQCB	Lahontan Regional Water Quality Control Board
NFS	National Forest System
O&M	operation and maintenance
Plan	Erosion and Sediment Control Plan
PM&E measures	Protection, Mitigation, and Enhancement measures, which are operation and management activities to: (1) protect resources against impacts from continued operation and maintenance of the Project; (2) mitigate any impacts from continued operation and maintenance of the Project (if the resource cannot be fully protected); and (3) enhance resources affected by continued Project operation and maintenance
Project	Devil Canyon Project Relicensing, FERC Project Number 14797
Project boundary	The area to which DWR requires access for normal Project operations and maintenance; the boundary is shown in Exhibit G of DWR's Application for New License
SARWQCB	Santa Ana Regional Water Quality Control Board
SBNF	San Bernardino National Forest
SRA	State Recreation Area
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
USFS	U.S. Department of Agriculture, Forest Service
USFWS	U.S. Fish and Wildlife Service

## **1.0 INTRODUCTION**

In November 2019, the California Department of Water Resources (DWR), pursuant to Title 18 of the Code of Federal Regulations, Subchapter B (Regulation under the Federal Power Act), Part 4, Subpart F (Application for License for Major Project – Existing Dam) (Traditional Licensing Process), filed with the Federal Energy Regulatory Commission (FERC) an Application for a New License for Major Project – Existing Dam (Application for New License) for DWR’s Devil Canyon Project Relicensing, FERC Project Number 14797 (Project).

DWR included this Erosion and Sediment Control Plan (Plan) in its November 2019 Application for New License. All elevation data in this exhibit are in U.S. Department of Commerce, National Oceanic and Atmospheric Association, National Geodetic Survey Vertical Datum of 1929, unless otherwise stated.

### **1.1 BACKGROUND**

#### **1.1.1 Brief Description of the Project**

The Project is part of a larger water storage and delivery system, the State Water Project (SWP), which is the largest state-owned and operated water supply project of its kind in the United States. The SWP provides southern California with many benefits, including affordable water supply, reliable regional clean energy, opportunities to integrate green energy, accessible public recreation opportunities, and environmental benefits.

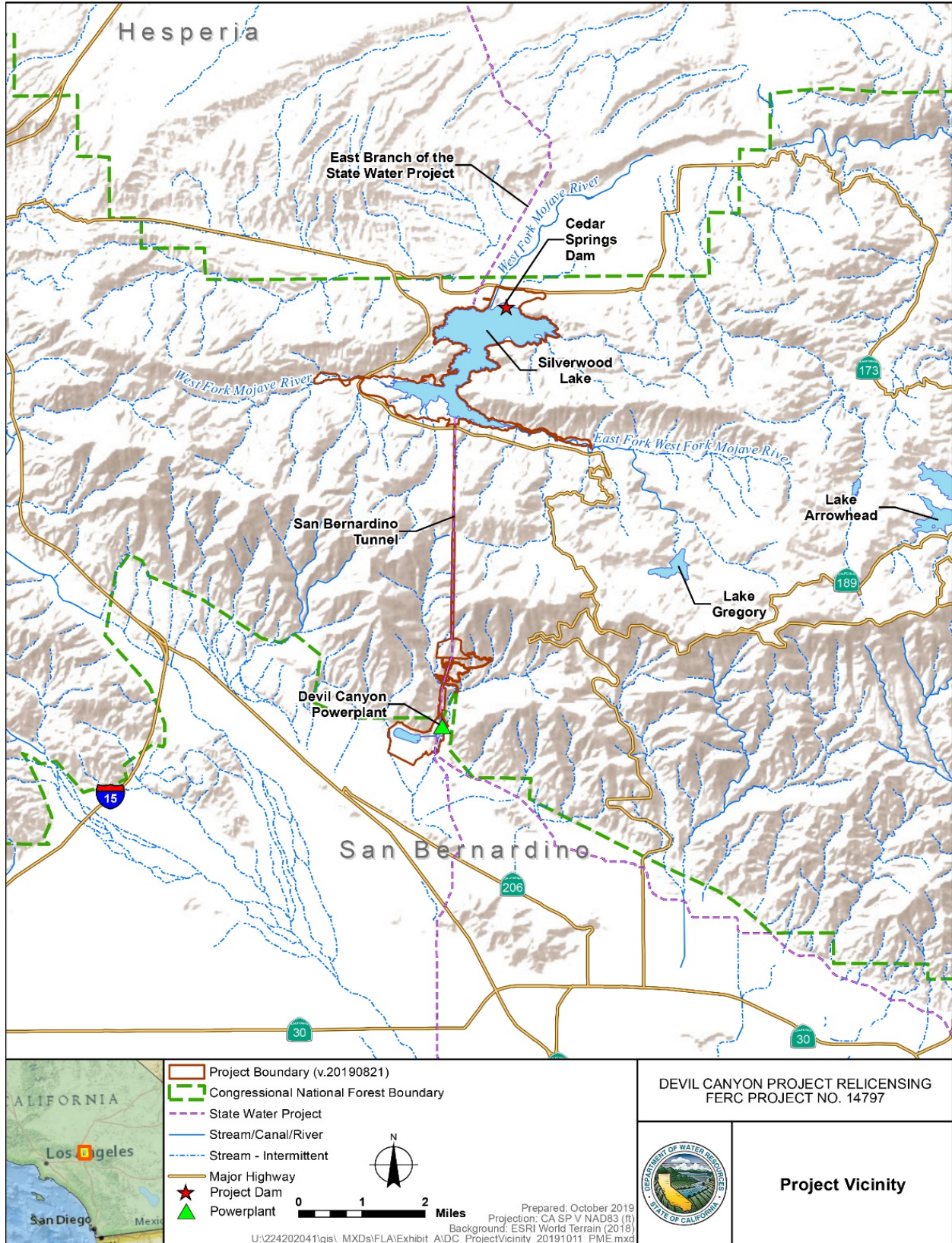
The Project, which is on the East Branch of the SWP in San Bernardino County, has a FERC-authorized installed capacity of 280 megawatts. Project facilities range in elevation from 3,378 feet to 1,778 feet, and include: Cedar Springs Dam and Silverwood Lake; San Bernardino Tunnel; Devil Canyon Powerplant Penstocks and Surge Chamber; Devil Canyon Powerplant and Switchyard; Devil Canyon Afterbay and Second Afterbay; Silverwood Lake-associated recreation facilities; and appurtenant facilities and features. The California Department of Parks and Recreation, on behalf of DWR, maintains and operates the Silverwood Lake-associated Project recreation facilities as part of the Silverwood Lake State Recreation Area (SRA). Non-Project facilities (e.g., the Pacific Crest Trail) traverse or are located in the Silverwood Lake SRA but are not Project facilities. The Project does not include any open water conduits or transmission lines. DWR operates the Project in a run-of-release mode using SWP water for deliveries to downstream SWP water users.

The Project boundary comprises 2,079.2 acres, of which 125.7 acres are National Forest System (NFS) lands managed by the U.S. Department of Agriculture, Forest Service (USFS), as part of the San Bernardino National Forest (SBNF). USFS administers the SBNF in conformance with the SBNF Land Management Plan (USFS 2005), as subsequently amended (USFS 2006).

DWR will continue to operate the Project as it has been operated historically, with the addition of a number of Protection, Mitigation, and Enhancement (PM&E) measures,

which are operation and management activities to: (1) protect resources against potential impacts from continued operation and maintenance (O&M) of the Project; (2) mitigate any impacts from continued O&M of the Project (if the resource cannot be fully protected); and (3) enhance resources affected by continued Project O&M. This Plan is one of those PM&E measures.

Figure 1.1-1 shows the Project vicinity. Figure 1.1-2 shows primary Project facilities, including DWR's Project boundary.



**Figure 1.1-1. Devil Canyon Project Vicinity**





## **1.2 PURPOSE OF THE PLAN**

The purpose of this Plan is to minimize future erosion and sedimentation related to the Project. This plan covers ground-disturbing activities from routine O&M and new construction that could produce undesirable erosion or sedimentation conditions near, streams, reservoirs, or infrastructure.

To the extent appropriate, DWR will coordinate the efforts required under this Plan with other Project resource efforts, including implementation of other resource management plans and measures included in the license.

## **1.3 GOALS AND OBJECTIVES OF THE PLAN**

The primary goal of the Plan is to describe existing DWR and USFS Best Management Practices (BMP) (USFS 2012) on NFS lands to control site-specific erosion and sedimentation impacts during routine O&M and reconstruction of Project facilities, including emergency erosion control measures and protocols to control sedimentation during or after severe storm events. The objective of the Plan is to provide necessary current guidelines to meet Plan goals.

## **1.4 CONTENTS OF THE PLAN**

This Plan includes the following:

- Section 1.0. Introduction. This section includes introductory information, including the purpose, goals, and objectives of the Plan.
- Section 2.0. Methods for Minimization of Erosion and Sedimentation during Continued Project Operation and Maintenance. This section describes the methods for minimization of site-specific erosion and sedimentation impacts during continued operation and maintenance of the Project, including potential slope failures, new construction and/or reconstruction of Project facilities.
- Section 3.0. Consultation, Reporting, and Plan Revisions. This section describes consultation between DWR and the SBNF, reporting, and Plan revisions.
- Section 4.0. References Cited. This section includes the resource documents cited in this Plan.

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## **2.0 METHODS FOR MINIMIZATION OF EROSION AND SEDIMENTATION DURING CONTINUED PROJECT OPERATION AND MAINTENANCE**

### **2.1 OVERALL EROSION AND SEDIMENT CONTROL PLANNING PROCESS FOR THE DEVIL CANYON PROJECT**

Figure 2.1-1 is a flowchart that generally describes the overall erosion and sediment control planning, consultation, permitting, treatment, and monitoring pathways for the Project. Normally, erosion treatment projects are either planned in advance (Box 1 in Figure 2.1-1) or arise as, or are initially implemented as, emergency actions (Box 2 in Figure 2.1-1). Prior to implementation, some permanent erosion control/stabilization activities may require consultation with the Lahontan Regional Water Quality Control Board (LRWQCB) or the Santa Ana Regional Water Quality Control Board (SARWQCB). The SBNF will be consulted on NFS lands (Box 10 in Figure 2.1-1). Permanent erosion control features are defined as constructed features such as road drainage features, rip-rap, and retaining walls.

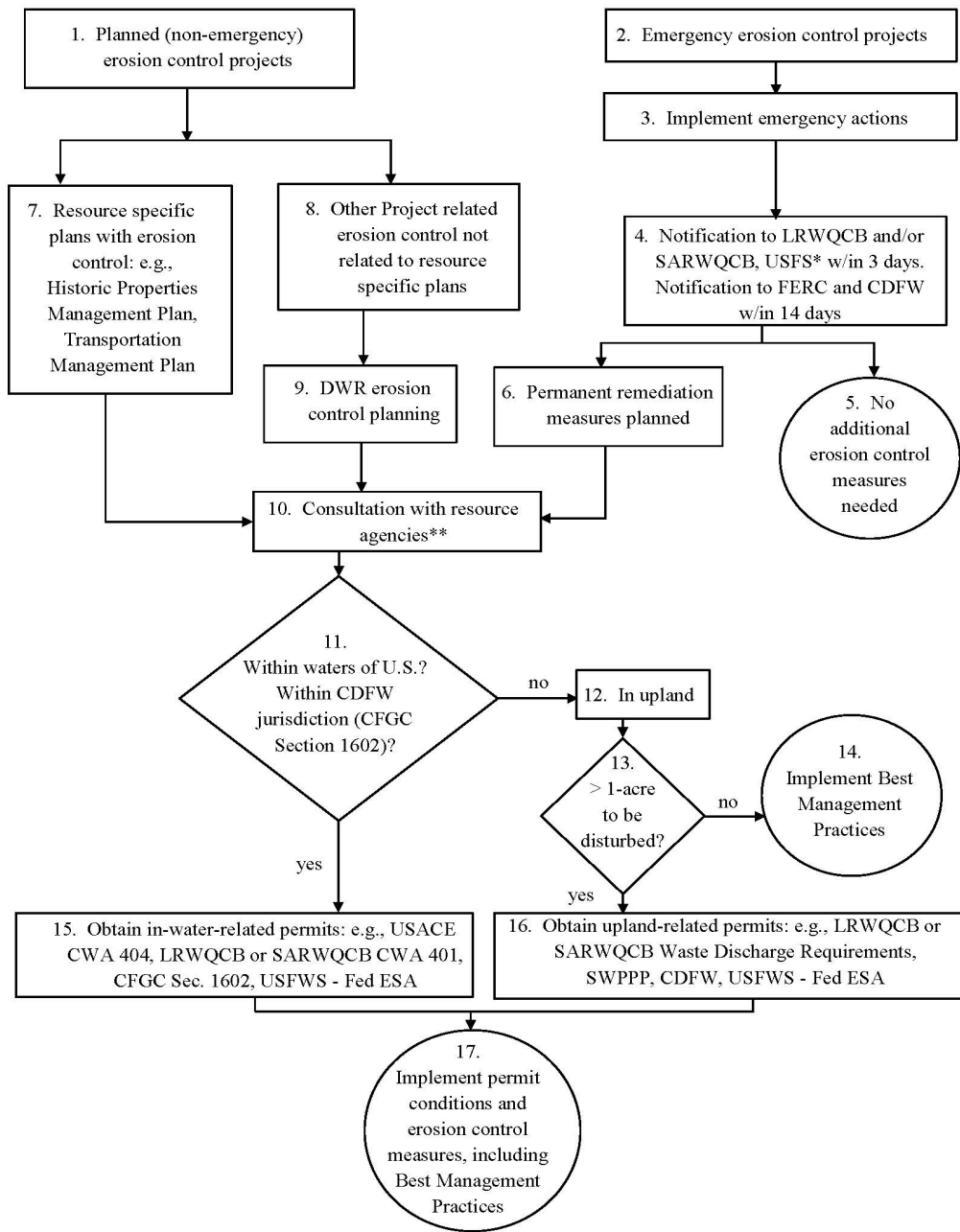
When erosion control takes place on an emergency basis, then concurrent or after-the-fact notification to the LRWQCB, SARWQCB, California Department of Fish and Wildlife (CDFW), USFS (when on or affecting NFS lands), and/or FERC may be necessary (Box 4 in Figure 2.1-1). If after the emergency erosion control actions are completed and more permanent stabilization measures are needed, then DWR will prepare a site plan with appropriate remediation and monitoring measures (Box 6 in Figure 2.1-1). If the emergency action does not require more permanent stabilization activities, then no other erosion control measures will be implemented (Box 5 in Figure 2.1-1).

Generally, planned (non-emergency) erosion control activities fall into one of two categories: (1) those associated with an erosion control element in a specific resource plan included in the new license (e.g., Historic Properties Management Plan, Transportation Management Plan, etc.) (Box 7 in Figure 2.1-1); or (2) any Project-related erosion control not addressed by specific resource plans included in the new license (Box 8 in Figure 2.1-1). Prior to implementation, planned erosion treatment plans and designs normally require consultation with USFS when on or affecting NFS lands, and potentially the LRWQCB or SARWQCB (Box 10 in Figure 2.1-1).

DWR will seek a Section 401 certification, as appropriate, if an erosion control activity will involve federal approval for a discharge into waters of the United States.

Erosion treatment projects that fall within designated “waters of the United States” may be subject to a U.S. Army Corps of Engineers (USACE) permit (Box 11 in Figure 2.1-1). This may be a Nationwide or an Individual permit, depending upon the specific circumstances.

Erosion treatment projects may also fall under California Fish and Game Code (CFGC) Section 1602.



**Notes:**

\*USFS consultation applies when on or affecting National Forest System lands.

\*\*Resource agencies may include LRWQCB, SARWQCB, CDFW, USFWS, USACE, and others, as appropriate.

**Key:**

CDFW = California Department of Fish and Wildlife

CFGC = California Fish and Game Code

CWA 401 = Clean Water Act, Section 401 Certification

CWA 404 = Clean Water Act, Section 404 Permit Program

Fed ESA = Federal Endangered Species Act

LRWQCB = Lahontan Regional Water Quality Control Board

SARWQCB = Santa Ana Regional Water Quality Control Board

USACE = U.S. Army Corps of Engineers

USFS = U.S. Department of Agriculture, Forest Service

USFWS = U.S. Fish and Wildlife Service

**Figure 2.1-1. Erosion and Sediment Control Plan Process Flow Chart**

Construction work that disturbs a land area greater than one acre may be subject to a Statewide General Permit for stormwater discharge associated with construction activity, which may require a Stormwater Pollution Prevention Plan (SWPPP) (Box 16 in Figure 2.1-1). If the Project is smaller than 1 acre of land disturbance, then the Statewide General Permit is not required (Box 14 in Figure 2.1-1).

After the appropriate permits are obtained, and in compliance with the requirements of such permits, DWR would implement the erosion treatment (Box 17 in Figure 2.1-1).

## **2.2 MEASURES RELATED TO NEW CONSTRUCTION**

Temporary erosion prevention and control measures are normally implemented during construction or reconstruction of Project facilities and infrastructure. This includes, but is not limited to, reconstruction at dam sites, road reconstruction, and recreation site development, where ground disturbance and/or vegetation removal is expected. These measures are typically based on State and federal permit requirements as applicable; BMPs for NFS land; DWR BMPs, including the development of a SWPPP when required; and measures included in a Section 1602 Agreement, if obtained. Table 2.2-1 provides a general list of priority BMPs for erosion control at construction sites.

DWR, or its contractor(s), normally prepare and implement a SWPPP, if required, during development of detailed construction plans and drawings, and prior to initiating erosion control measures for each site larger than one acre. A copy of the SWPPP and Section 1602 Agreement, if one is obtained for the work, is usually maintained on site while the site is under construction, commencing with the initial mobilization and ending with the termination of coverage under a USACE permit, if applicable.

For construction and maintenance activities on NFS lands within the FERC Project boundary, DWR complies with the applicable non-stormwater BMPs adopted by USFS. For construction and maintenance activities on non-NFS lands within the Project boundary, DWR implements DWR's non-stormwater BMPs, depending on the specifics of a particular project. These BMP measures normally are site-specific for each planned construction project and might extend past the final construction inspection, if re-vegetation is included for more permanent site stabilization and erosion control.

**Table 2.2-1. General List of Best Management Practices for Erosion and Sediment Control at Construction Sites**

BMP Topic	Key Elements
Construction Scheduling	<ul style="list-style-type: none"> <li>• Sequence construction activities so that the soil is not exposed for long periods of time.</li> <li>• Schedule or limit grading to small areas.</li> <li>• Install key sediment control practices before site grading begins.</li> <li>• Schedule site stabilization as described below.</li> <li>• Avoid rainy periods when scheduling major grading activities.</li> <li>• Incorporate time for establishment of vegetation into the conclusion of the construction schedule.</li> <li>• Monitor rainfall and rain forecasts.</li> </ul>
Preservation of Existing Vegetation	<ul style="list-style-type: none"> <li>• Minimize clearing and the amount of exposed soil.</li> <li>• Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.</li> <li>• Protect streams, stream barriers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.</li> </ul>
Site Stabilization	<ul style="list-style-type: none"> <li>• Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed, or during temporary periods of inactivity.</li> <li>• Schedule temporary stabilization at inactive disturbed areas as soon as possible upon cessation of soil disturbing activities.</li> <li>• Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.</li> </ul>
Silt Fencing	<ul style="list-style-type: none"> <li>• Inspect and maintain silt fences after each storm event.</li> <li>• Make sure the bottom of the silt fence is buried.</li> <li>• Securely attach the material to the stakes.</li> <li>• Don't place silt fences in the middle of a waterway or use them as a check dam.</li> <li>• Install silt fence along topography contours with ends turned uphill in areas where sheet flow typically occurs. Stormwater should not flow around the silt fence.</li> <li>• Each silt fence should drain a maximum slope length of 100 feet.</li> </ul>
Storm Drain Inlet Protection	<ul style="list-style-type: none"> <li>• Use rock or other appropriate material to cover the storm drain inlet to prevent trash and debris from entering the storm sewer system.</li> <li>• Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).</li> <li>• If you use inlet filters, maintain them regularly.</li> <li>• Storm drains should not drain an area larger than 1 acre. If they do, stormwater must be routed through additional BMPs, such as sediment basins or sediment traps.</li> </ul>

**Table 2.2-1. General List of Best Management Practices for Erosion and Sediment Control at Construction Sites (continued)**

BMP Topic	Key Elements
Buffers	<ul style="list-style-type: none"> <li>• Depending on site specifics, maintain vegetative buffers or buffers by other means along water bodies to slow and filter stormwater run-off.</li> <li>• Maintain buffers periodically to ensure their effectiveness.</li> </ul>
Fugitive Dust Suppression	<ul style="list-style-type: none"> <li>• Apply water on access roads.</li> <li>• Haul materials in properly tarped or sealed containers.</li> <li>• Restrict vehicle speeds to 15 miles per hour.</li> <li>• Cover excavated areas and material after excavation activity ceases.</li> <li>• Reduce the excavation size and/or number of excavations.</li> <li>• Water-down equipment and excavation faces.</li> </ul>
Stabilized Construction Entrances	<ul style="list-style-type: none"> <li>• Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.</li> <li>• Maintain or repair the construction entrance so that it does not become buried in soil.</li> <li>• Properly size entrance BMPs for all anticipated vehicles.</li> <li>• Crushed rock and gravel pads may be used as a stabilized construction entrance.</li> <li>• Replace gravel material when surface voids are visible.</li> <li>• Remove all sediment deposited on roadways within 24 hours.</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>• Collect concrete and wash water in concrete washout facilities, especially when operations are near water resources. Containers must be adequately sized to handle solids, wash water, and possible rainfall.</li> <li>• Choose smaller, covered containers and more frequent collection.</li> <li>• Do not allow waste to accumulate on site.</li> <li>• Separate recyclable materials from waste and keep covered.</li> <li>• Conduct visual inspections of dumpsters and recycling bins, removing containment and keeping containers covered.</li> <li>• Ensure proper storage of stockpiled materials and material storage on site.</li> <li>• Stockpile processed materials on-site separately. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.</li> </ul>

*Key:*  
*BMP = Best Management Practice*

### **2.3 MEASURES RELATED TO ROUTINE MAINTENANCE ON NATIONAL FOREST SYSTEM LANDS**

DWR normally adheres to USFS' National Best Management Practices for Water Quality Management on National Forest System lands (USFS 2012) for any routine maintenance activities affecting NFS lands. These BMPs are designed to minimize soil disturbance and reduce delivery of sediment to water bodies. On non-NFS lands, DWR's erosion control BMPs include sediment control measures such as silt fences, sandbag and straw wattles; revegetation of areas after ground-disturbing activities; re-grading slopes to prevent concentrated runoff into water bodies; scheduling activities

outside rainy periods (when possible); and installation of rock revetment structures; as described in the general list of BMPs in Table 2.2-1.

## **2.4 MEASURES RELATED TO OTHER EMERGENCY EROSION CONTROL EVENTS**

DWR will be prepared to monitor for unexpected, emergency erosion control events within the Project boundary that develop in response to significant events (e.g., storms and wildfires). Erosion control measures typically include the protocols for documentation of specific erosion threats, appropriate agency notifications, and short/long-term actions that can be taken to stabilize each site and address public safety.

For emergency erosion control work, DWR will provide notification to CDFW, as appropriate, pursuant to CFGC Section 1610, which requires notification to be submitted within 14 days of beginning the emergency work. "Emergency work" as defined in CFGC Section 1610 includes: (1) immediate emergency work necessary to protect life or property, and (2) immediate emergency repairs to public service facilities necessary to maintain service as a result of a disaster in an area in which a state of emergency has been proclaimed by the governor of California.

## **2.5 MONITORING OF EROSION AND SEDIMENT CONTROL ACTIVITIES**

Monitoring of erosion and sediment control plans generally includes both implementation monitoring (i.e., whether the BMP was installed correctly) and effectiveness monitoring (e.g., whether maintenance or adaptive management is required, whether revegetation is meeting required standards). Monitoring of erosion and sediment control activities for the Project will follow the parameters of the applicable permits (e.g., Section 1602 Agreement, 404 permit and 401 certification), and/or license implementation plan. Various implementation plans in the license (e.g., the Integrated Vegetation Management Plan and Transportation System Management Plan) include specific erosion control-related provisions.

If the work is on or affects NFS lands, the monitoring will adhere, as appropriate, to USFS 2012. The implementation plans incorporate the USFS Handbook requirements so no conflict is anticipated between the implementation plans and the USFS Handbook requirements. However, if a discrepancy does occur between the specific permits and license implementation plans, the monitoring required in the permit will take priority over the monitoring required in the implementation plan.

The USFS Land Management Plan (USFS 2005) requires USFS to annually audit BMP implementation and effectiveness on NFS lands to meet USFS policy. The USFS audit sites are chosen at random by USFS and may include sites related to this license. These audits would be conducted by USFS in cooperation with DWR.



### **3.0 CONSULTATION, REPORTING, AND PLAN REVISIONS**

#### **3.1 CONSULTATION AND REPORTING**

DWR will annually review with the SBNF activities related to erosion and sediment control on or affecting NFS lands in the previous calendar year, as well as any activities related to erosion and sediment control on NFS lands planned for the current calendar year. In addition, DWR will consult with the SBNF, as needed, regarding erosion and sediment control.

#### **3.2 PLAN REVISIONS**

DWR, in consultation with the SBNF, will review, update and/or revise this Plan, as it pertains to erosion and sediment control on NFS lands. Any updates to the Plan pertaining to the SBNF will be prepared in coordination and consultation with the SBNF. The SBNF will have 60 days after receipt of the updated plan to provide written comment and recommendations before DWR files the updated Plan with FERC for approval. DWR will include documentation of all relevant coordination and consultation associated with the updated Plan filed with FERC. If DWR does not adopt a particular recommendation by the SBNF, the filing will include DWR's reasons for not doing so. DWR will implement the Plan as approved by FERC. The Plan will not be considered revised until FERC issues its approval.

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#### 4.0 REFERENCES CITED

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