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# DEVIL CANYON PROJECT RELICENSING FERC PROJECT NUMBER 14797



## TRANSPORTATION SYSTEM MANAGEMENT PLAN

November 2019



State of California  
California Natural Resources Agency  
DEPARTMENT OF WATER  
RESOURCES  
Hydropower License Planning and  
Compliance Office

**GAVIN NEWSOM**  
Governor  
State of California

**WADE CROWFOOT**  
Secretary for  
California Natural Resources

**KARLA A. NEMETH**  
Director  
Department of Water Resources



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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, Federal Energy Regulatory Commission Project Number 14797
CLAWA	Crestline-Lake Arrowhead Water Agency
DWR	California Department of Water Resources
FERC	Federal Energy Regulatory Commission
general access road	A road, or segment of a road, used at times by agencies and members of the public to access Project facilities, but is not in the Project license, is not used exclusively to access the Project, and is not maintained exclusively by DWR
GIS	Geographic Information System
IVMP	DWR's Integrated Vegetation Management Plan included in its Application for New License
long-term maintenance	Repairs that are scheduled around specific events that impact the overall integrity of a given Primary Project Road, such as heavy-haul events or unusually heavy storm events; such events require repairs that are beyond the scope and budget of the short-term maintenance procedures. Long-term Primary Project Road repairs are undertaken in addition to short-term maintenance activities.
ML	Maintenance Level
MUTCD	U.S. Department of Transportation's Manual on Uniform Traffic Control Devices
NFS	National Forest System
O&M	operation and maintenance
OHV	off-highway vehicle
Plan	Transportation System Management Plan
PM&E measures	Protection, Mitigation, and Enhancement measures, which are operation and management activities to: (1) protect resources against potential 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

Primary Project Road	A road, or segment of a road, that is identified in the Project's new license as a Project facility, is used almost exclusively to access the Project, is within the FERC Project boundary, and is operated and maintained exclusively by DWR as a Project feature
Primary Project Trail	A trail, or segment of a trail, that is identified in the Project's new license as a Project facility, is used almost exclusively to access the Project, is within the FERC Project boundary, and is operated and maintained exclusively by DWR as a Project feature
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
RMP	DWR's Recreation Management Plan included in its Application for New License
SBNF	San Bernardino National Forest
short-term maintenance	Routine or periodic repairs, inspections, and maintenance activities conducted annually, periodically, or seasonally to address normal wear and tear during road use under typical annual weather conditions
SRA	State Recreation Area
SWP	State Water Project
U.S.	United States
USFS	U.S. Department of Agriculture, Forest Service

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## **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 Transportation System Management Plan (Plan) in its November 2019 Application for New License. This Plan addresses Primary Project Roads and Primary Project Trails, which include any road or any trail, or segment of a road or trail, that is identified in the new license as a Project facility, is used almost exclusively to access the Project, is within the FERC Project boundary, and is operated and maintained exclusively by DWR as a Project feature.

This Plan does not address roads and trails associated with Project recreation; these roads and trails are part of Project recreation facilities and are addressed in DWR’s relicensing Recreation Management Plan (RMP). Recreation-associated roads include, among others: all roads that access Project recreation facilities, most of which are located within the Silverwood Lake State Recreation Area (SRA); the access road from State Highway 138 to the entrance station to the SRA; and Dart Canyon Road, which provides a parking area for the public and vehicle access for Silverwood Lake SRA maintenance staff to service recreation facilities on the Miller Canyon area of Silverwood Lake SRA.

In addition, this Plan does not address maintenance of general access roads and trails, which are roads and trails, or segments of roads and trails, used at times by agencies and members of the public to access Project facilities, but are not in the Project license, are not used exclusively to access the Project, and are not maintained exclusively by DWR.

All elevation data in this Plan 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 SRA. Non-Project facilities (e.g., Crestline-Lake Arrowhead Water Agency [CLAWA] intake and the Pacific Crest National Scenic Trail) are located within or traverse the Project boundary, but are not Project facilities. The Project does not include any open water conduits, excluding the 1,000-foot-long Cross Channel that connects the Devil Canyon Afterbay and Devil Canyon Second Afterbay. The Project interconnects with the regional electric transmission system grid at the Devil Canyon Powerhouse and, therefore, does not include any transmission lines. DWR operates the Project in a run-of-release mode using SWP water as the water is delivered 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 2005a), as subsequently amended.

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.

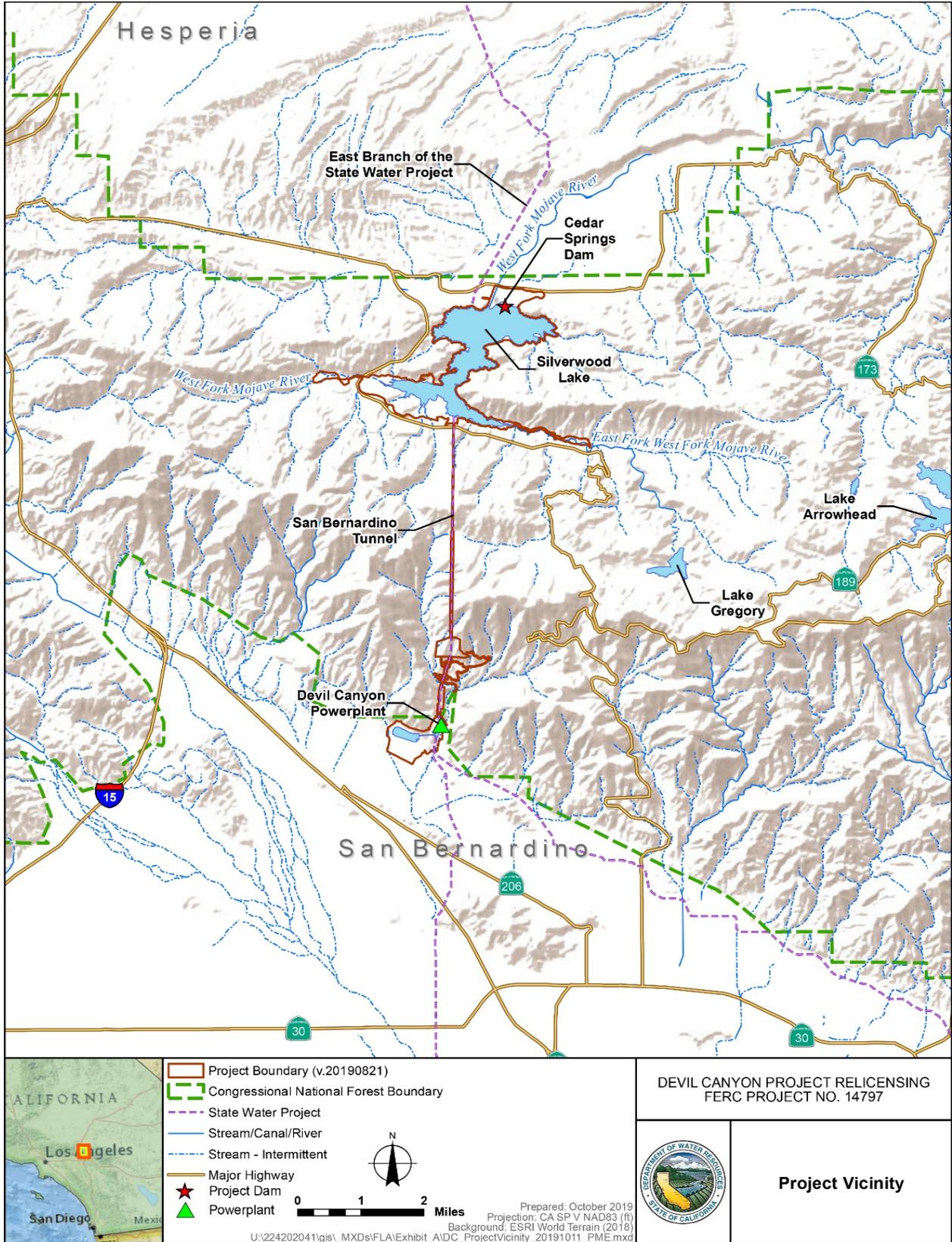


Figure 1.1-1. Devil Canyon Project Vicinity



## **1.2 PURPOSE OF THE PLAN**

This Plan is intended to provide guidance for the operation and maintenance of Primary Project Roads and Trails to minimize environmental effects from these roads and trails. 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 goals of this Plan are to list Primary Project Roads and Trails, and to describe the maintenance and scope of improvements known at this time, if any, for Primary Project Roads and Trails. The objective of the Plan is to describe the management of Primary Project Roads and Trails to meet the Plan's purpose and goals.

## **1.4 CONTENTS OF THE PLAN**

The Plan includes the following:

- Section 1.0. Introduction. Includes introductory information, including the purpose and goals of the Plan.
- Section 2.0. Identification of Primary Project Roads and Trails. Describes the roads and trails used by DWR to access Project facilities, and identifies which of those roads and trails are Primary Project Roads and Trails, and why. In addition, this section provides detailed information regarding each Primary Project Road and Trail.
- Section 3.0. Maintenance of Primary Project Roads and Trails. Describes the manner in which DWR will maintain and operate Primary Project Roads and Trails, recognizing that requirements on NFS lands are different than those on non-NFS lands.
- Section 4.0. Consultation, Reporting, and Plan Revisions. Describes consultation and Plan review between DWR and USFS regarding Primary Project Roads and Trails on NFS lands.
- Section 5.0. References Cited. Includes the resource documents cited in this Plan.

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## **2.0 IDENTIFICATION OF PRIMARY PROJECT ROADS AND TRAILS**

This section describes the roads and trails used by DWR to access Project facilities, and identifies which of those roads and trails are Primary Project Roads and Trails, and why. In addition, this section provides detailed information regarding each Primary Project Road and Trail.

### **2.1 ROADS AND TRAILS USED BY DWR TO ACCESS PROJECT FACILITIES**

#### **2.1.1 Vehicular Access**

DWR staff access Project facilities via vehicle from the Project's Devil Canyon Powerplant complex, which is a fenced and gated area at 6900 Devils Canyon Road in San Bernardino, California. The fenced area includes the Devil Canyon Powerplant and Switchyard, the lower portion of the San Bernardino Penstocks, Devil Canyon Afterbay and Second Afterbay, and associated paved parking areas. The complex is closed to the public at the entrance gate. The route from the Devil Canyon Powerplant complex, or the nearest federal or State highway, that DWR Operations staff use to access each Project facility is described below. Road lengths provided below are rounded to the nearest tenth of a mile and are based on DWR's relicensing Geographic Information System (GIS) database. Road widths are in feet and are based on DWR's relicensing GIS database.

##### **2.1.1.1 *San Bernardino Tunnel Outlet***

DWR Operations staff access the San Bernardino Tunnel Outlet by turning north onto Devils Canyon Road from Devil Canyon Powerhouse and driving to a locked gate. Devils Canyon Road to the gate is on City of San Bernardino lands, and is maintained by the County of San Bernardino. The gate is maintained by DWR. DWR Operations staff continue past the gate along two road segments, both of which are paved. The first segment is 1.4 miles long, intersects a portion of the San Bernardino Penstocks that is buried, and is located on City of San Bernardino lands and State of California lands. The second segment is 1.0 mile long, is on NFS lands, and extends from the end of the first segment to the San Bernardino Tunnel Outlet, where the tunnel transitions to the penstocks.

Devils Canyon Road to the locked gate is a general access road since it is used for multiple purposes, including access to private residences. The road from the gate, including the gate, to the outlet is a Primary Project Road, since it is maintained by DWR and is solely used by DWR to access the outlet. This Primary Project Road, which is entirely within the Project boundary, is referred to in this Plan as the "Tunnel Portal Access Road." Figure 1 in Appendix A is a map of the Tunnel Portal Access Road.

##### **2.1.1.2 *San Bernardino Tunnel Surge Chamber***

DWR Operations staff access the San Bernardino Tunnel Surge Chamber from the Tunnel Portal Access Road described above by driving 0.5 miles along a paved road to the surge chamber. The access road is on NFS lands and is entirely within the Project

boundary. The access road is a Primary Project Road because it is maintained solely by DWR for Project purposes, and is referred to in this Plan as the “Surge Chamber Access Road.” Figure 2 in Appendix A is a map of the Surge Chamber Access Road.

### **2.1.1.3 Devil Canyon Powerplant Penstocks**

DWR Operations staff access the Devil Canyon Powerplant Penstocks from four roads that occur on NFS, City of San Bernardino, and State of California lands.

#### **Upper Penstocks**

The upper penstocks are accessed by DWR Operations staff from three roads. The first road provides access to the west portion of the upper penstocks, has a native surface, and extends from the Tunnel Portal Access Road at the San Bernardino Tunnel Outlet for approximately 1.1 miles from the locked gate before reconnecting to the Tunnel Portal Access Road further to the south, near where the upper penstocks go underground. The road has three segments. The first segment is 0.4 miles long, is on NFS lands, and extends from the San Bernardino Tunnel Outlet to the intersection of NFS and DWR property boundaries. The second segment is 0.3 miles long, is on City of San Bernardino and State of California lands, and extends from the intersection of NFS and DWR property boundaries to the penstocks. The third segment is 0.5 miles long, is on City of San Bernardino lands, NFS lands, and State of California lands, and extends from the second segment to the intersection with the Tunnel Portal Access Road. The road is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Upper Penstocks (West) Access Road.” Figure 3 in Appendix A is a map of the Upper Penstocks (West) Access Road.

The second road provides access to the upper east portion of the upper penstocks, has a native surface, and extends from the Tunnel Portal Access Road to the penstocks. The road has two segments. The first segment is 0.4 miles long, is on City of San Bernardino and State of California lands, and extends from the Tunnel Portal Access Road to the upper portion of the penstocks. The second segment is 0.3 miles long, is on City of San Bernardino and State of California lands, and extends from the first segment to the penstocks. The road is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Upper Penstocks (Upper East) Access Road.” Figure 4 in Appendix A is a map of the Upper Penstocks (Upper East) Access Road.

The third road provides access to the lower east portion of the upper penstocks, and extends from the Tunnel Portal Access Road to the penstocks. The road has one segment that has a native surface, is 0.1 miles long, is on City of San Bernardino and State of California lands, and extends from the Tunnel Portal Access Road to the penstocks. The road is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Upper Penstocks (Lower East) Access Road.” Figure 5 in Appendix A is a map of the Upper Penstocks (Lower East) Access Road.

## **Lower Penstocks**

The lower portion of the Devil Canyon Powerplant Penstocks is accessed by DWR Operations staff from one road that originates at the northern end of the Devil Canyon Powerplant complex. The road has three segments. The first segment is 0.5 miles long, crosses the penstocks from west to east, is on State of California lands, and extends from a locked gate at the complex along the east side of the penstocks. The second segment is less than 0.1 miles long, is on State of California lands, and extends from the first segment to the penstocks. The third segment is 0.3 miles long, is on City of San Bernardino lands and State of California lands, and extends from the complex along the west side of the penstocks and connects with the first segment. The road is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Lower Penstocks Access Road.” Figure 6 in Appendix A is a map of the Lower Penstocks Access Road.

### ***2.1.1.4 Cedar Springs Dam and Cedar Springs Dam Spillway***

The upper portion of Cedar Springs Dam is accessed by DWR Operations staff from one road, which also accesses the east side of the Cedar Springs Dam Spillway. The downstream face of the dam and west side of the spillway are accessed by different roads. Each of these roads is entirely on State of California lands and is described below.

## **Cedar Springs Dam and East Side of Cedar Springs Dam Spillway**

From State Highway 173, DWR Operations staff turn onto a paved road at a locked gate maintained by DWR and located at the intersection with State Highway 173. The road beyond the locked gate has two segments. The first segment is approximately 0.9 miles long, and extends from a DWR locked gate off State Highway 173 to a DWR locked gate on Cedar Springs Dam Road on the other side of Cedar Springs Dam. The second segment is approximately 0.1 miles long and extends from the first road segment to the upstream end of the spillway.

Cedar Springs Dam Road is a general access road off State Highway 173 because it provides public access to a public parking area near the east side of the Cedar Springs Dam and is used by the NFS and NFS recreationists (off-highway vehicle [OHV] users) to access the Forest Road 2N33 and for other access purposes. In the past, DWR has used Cedar Springs Dam Road on rare occasions for heavy equipment deliveries to the east side of the dam since the road provides more clearance than the west side access. However, this was done for convenience and is not a necessity. The road between the locked gates is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Dam and Spillway Access Road.” Figure 7 in Appendix A is a map of the Dam and Spillway Access Road.

### **Downstream Face of Cedar Springs Dam**

From the Dam and Spillway Access Road, DWR Operations staff turn onto a native surfaced road that provides access to the downstream face of Cedar Springs Dam. The road has two segments. The first segment is approximately 0.2 miles long, and extends along the foot of the dam from the Dam and Spillway Access Road to a locked gate. A portion of Segment 1 parallels the PCT.<sup>1</sup> DWR maintains a chain-link fence with slats along the uphill side of the road to prohibit public access to the dam face. In addition, the fence limits the view of the dam face to PCT hikers. The second segment extends from the locked gate to the downstream face of the dam (primarily accesses dam seepage monitors), is approximately 0.2 miles long, and has a native surface.

The road is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Dam Downstream Face Access Road.” Figure 8 in Appendix A is a map of the Dam Downstream Face Access Road.

### **West Side of Cedar Springs Dam Spillway**

DWR Operations staff exit State Highway 173 near the spillway, and turn onto an access road to the Mojave Power/Pumping Plant, a non-Project facility. The access road has two segments. The first segment begins approximately 0.4 miles from State Highway 173 along a road that provides access to the Mojave Power/Pumping Plant and is approximately 0.2 miles long, and extends to the western side of the spillway channel. The second segment is approximately 0.1 miles long and extends from the end of the first road segment down towards Silverwood Lake.

The road to the Mojave Power/Pumping Plant is a general access road because it provides access to both the Project and a non-Project facility. The access road is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the “Spillway Access Road.” Figure 9 in Appendix A is a map of the Spillway Access Road.

#### ***2.1.1.5 San Bernardino Tunnel Intake***

From State Highway 138, DWR Operations staff turn onto a road that provides access to the CLAWA Water Treatment Plant, and use Silverwood Lake SRA roads to reach a DWR-maintained gate that prohibits vehicular access to the San Bernardino Tunnel Intake. The road from the gate to the intake is on State of California lands and is approximately 0.1 miles long. In addition, from the CLAWA Water Treatment Plant Road, DWR Operations Staff access a gated parking area for the San Bernardino Tunnel Access Shaft.

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<sup>1</sup> On March 26, 1980, the State of California, acting through DWR, granted the United States, acting through USFS, non-exclusive agreements for use of certain State of California-owned parcels in San Bernardino County to locate, construct, use, maintain, relocate and repair the PCT. DWR reserved its right to use the area for its purposes.

The road to the CLAWA Water Treatment Plant is a general access road because it is used by both CLAWA and DWR Operations staff. The gated parking area for the San Bernardino Tunnel Access Shaft is not a Primary Project Road, but just a parking area. The road from the gate to the intake is a Primary Project Road because it is maintained solely by DWR for Project purposes. This Primary Project Road is referred to in this Plan as the "Intake Access Road." Figure 10 in Appendix A is a map of the Intake Access Road.

### **2.1.2 Foot or Off-Highway Vehicle Access**

DWR does not maintain any trails for foot or OHV access to Project facilities, other than pedestrian and bicycle trails related to recreation. Those trails are addressed in DWR's relicensing RMP.

## **2.2 LIST OF PRIMARY PROJECT ROADS**

The Project includes 10 Primary Project Roads with 19 road segments, for a total distance of 7.6 miles. Three of the 19 segments (1.9 miles in total length) are entirely on NFS lands; one segment (0.5 miles) is on a combination of NFS lands (i.e., less than 100 feet of the 0.5 miles), City of San Bernardino, and State of California lands; six segments (2.8 miles) are on a combination of City of San Bernardino and State of California lands; and the remaining nine segments (2.4 miles) are entirely on State of California lands (Table 2.2-1.) None of the Primary Project Road segments are open to public vehicular traffic; all have locked vehicle gates.

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**Table 2.2-1. Primary Project Roads**

Designation in This Plan (Figure in Appendix A)	Segment Number	Begins	Ends	Road Travel Surface	Road Width (feet)	Gated or Otherwise Restricted to Public	Land Ownership	USFS Maintenance Level, If on NFS Lands	Length (miles)	Project Use	Typical Number of DWR Operations Staff Roundtrips
<b>PRIMARY PROJECT ROADS</b>											
Tunnel Portal Access Road (Figure 1)	1	Locked gate on Devils Canyon Road	Intersection of private and NFS lands	Paved	35	Yes	City of San Bernardino and State of California <sup>1</sup>	--	1.4	Access to San Bernardino Tunnel Outlet	1-2 round trips per day
	2	Intersection of private and NFS lands	San Bernardino Tunnel Outlet	Paved	35		NFS	4 <sup>3</sup>	1.0		
Surge Chamber Access Road (Figure 2)	1	Tunnel Outlet Access Road	San Bernardino Tunnel Surge Chamber	Paved	30	Restricted by locked gate on Tunnel Outlet Access Road	NFS	4 <sup>3</sup>	0.5	Access to San Bernardino Tunnel Surge Chamber	1-2 round trips per day
Upper Penstocks (West) Access Road (Figure 3)	1	San Bernardino Tunnel Outlet	Intersection of private and NFS lands	Native	20	Restricted by locked gate on Tunnel Outlet Access Road	NFS	2	0.4	Access to west side of Upper Portion of Devil Canyon Penstocks	1-2 round trips per day
	2	Intersection of private and NFS lands	Devil Canyon Powerplant Penstocks	Native	25		City of San Bernardino and State of California	--	0.3		
	3	Segment 2	Tunnel Outlet Access Road	Native	20		City of San Bernardino, NFS lands <sup>2</sup> , State of California	2	0.5		
Upper Penstocks (Upper East) Access Road (Figure 4)	1	Tunnel Outlet Access Road	Devil Canyon Powerplant Penstocks	Native	15	Restricted by locked gate on Tunnel Outlet Access Road	City of San Bernardino and State of California	--	0.4	Access to east side of Upper Portion of Devil Canyon Powerplant Penstocks	1-2 round trips per day
	2	Segment 1	Devil Canyon Powerplant Penstocks	Native	15		City of San Bernardino and State of California	--	0.3		
Upper Penstocks (Lower East) Access Road (Figure 5)	1	Tunnel Outlet Access Road	Devil Canyon Powerplant Penstocks	Native	15	Restricted by locked gate on Tunnel Outlet Access Road	City of San Bernardino and State of California	--	0.1	Access to east side of Upper Portion of Devil Canyon Powerplant Penstocks	1-2 round trips per day

**Table 2.2-1. Primary Project Roads (continued)**

Designation in This Plan	Segment Number	Begins	Ends	Road Travel Surface	Road Width (feet)	Gated or Otherwise Restricted to Public	Land Ownership, and USFS Road Designation, If on NFS Lands	USFS Maintenance Level, If on NFS Lands	Length (miles)	Project Use	Typical Number of DWR Operations Staff Roundtrips
Lower Penstocks Access Road (Figure 6)	1	Locked gate at Devil Canyon Powerplant Complex	Devil Canyon Powerplant Penstocks	Paved	25	Restricted by locked gate in Devil Canyon Powerplant complex	State of California	--	0.5	Access to Lower Portion of Devil Canyon Powerplant Penstocks	1-2 round trips per day
	2	Segment 1	Devil Canyon Powerplant Penstocks	Paved	40		State of California	--	<0.1		
	3	Locked gate at Devil Canyon Powerplant Complex	Devil Canyon Powerplant Penstocks	Paved	25		City of San Bernardino and State of California	--	0.3		
Dam and Spillway Access Road (Figure 7)	1	Locked gate at State Highway 173	Locked gate at Cedar Springs Dam Road	Paved	25	Yes	State of California	--	0.9	Access to Cedar Springs Dam and east side of Cedar Springs Dam Spillway	1-2 round trips per day
	2	Segment 2	Silverwood Lake	Native	25			--	0.1		
Dam Downstream Face Access Road (Figure 8)	1	Dam and Spillway Access Road	Locked gate	Native	30	Restricted by locked gates on Dam and Spillway Access Roads	State of California	--	0.2	Access to downstream face of Cedar Springs Dam	1-2 round trips per day
	2	Locked gate	Locked gate	Native	30		State of California	--	0.2		
Spillway Access Road (Figure 9)	1	Mojave Power/Pumping Plant Road	Cedar Springs Dam Spillway	Paved	20	Restricted by locked gate off State Highway 173	State of California	--	0.2	Access to west side of Cedar Springs Dam Spillway	1-2 round trips per day
	2	Upper end of Spillway	Silverwood Lake	Native	15			--	0.1		
Intake Access Road (Figure 10)	1	Locked gate	San Bernardino Tunnel Intake	Paved	30	Restricted by locked gate	State of California	--	0.1	Access to San Bernardino Tunnel Intake	1-2 round trips per day
<b>Total</b>	<b>10 Primary Project Roads; 19 Segments (3 Segments entirely on NFS Lands)</b>						<b>7.6 Total Miles (1.9 Miles on NFS Lands)</b>				

Notes:  
<sup>1</sup>State of California lands include any combination of California Department of Water Resources and California Department of Parks and Recreation lands.  
<sup>2</sup>Less than 100 feet of the road segment is on NFS lands.  
<sup>3</sup>The road segment is generally a Maintenance Level 2 road, but the SBNF considers it a Maintenance Level 4 road because it is paved.  
 Key:  
 NFS = National Forest System  
 USFS = U.S. Department of Agriculture, Forest Service

### 3.0 MAINTENANCE OF PRIMARY PROJECT ROADS AND TRAILS

#### 3.1 PRIMARY PROJECT ROADS

As shown in Table 2.1-1, Primary Project Roads are located on a combination of City of San Bernardino, State of California and NFS lands. With regard to Primary Project Roads on NFS lands, DWR maintains these roads in compliance with prescribed USFS Maintenance Levels (ML). Refer to Table 3.1-1, below, for USFS descriptions of the applicable MLs for each Primary Project Road.

**Table 3.1-1. USFS Maintenance Levels**

Parameters	Maintenance Level				
	1	2	3	4	5
Service Life	Intermittent Service-Closed Status	Constant Service or Intermittent Service-Open Status (Some uses may be restricted under 36 Code of Federal Regulations Section 261.50)			
Traffic Type	Open for non-motorized uses; Closed to motorized traffic.	Administrative, permitted, dispersed recreation specialized, commercial haul	All National Forest Traffic – General Use, Commercial Haul		
Vehicle Type	Closed - N/A	High clearance, pick-up, 4x4, log trucks, etc.	All types - passenger cars to large commercial vehicles		
Traffic Volume	Closed - N/A	Traffic volume increases with maintenance level			
Typical Surface	All types	None; Native, or Aggregate – may be dust abated	Aggregate – usually dust abated; paved		
Travel Speed	Closed - N/A	Travel speed increases with maintenance level			
User Comfort and Convenience	Closed - N/A	Not a consideration	Low priority	Moderate priority	High priority
Functional Classification	All types	Local collector	Local collector arterial	Local collector arterial	Local collector arterial
Level of Service	Closed - N/A	J	G, H, I - Traffic service level increases with maintenance level		
Management Strategy	Prohibit or eliminate	Discourage or prohibit cars. Accept or discourage high clearance vehicles	Encourage, accept	Encourage	Encourage

Source: USFS 2005b

Key:

*J = Traffic flow is slow and may be blocked by management activities. Two-way traffic is difficult, backing may be required. Rough and irregular surface. Travel with low clearance vehicles is difficult. Single purpose facility.*

*G = Free flowing, mixed traffic; stable, smooth surface. Provides safe service to all traffic.*

*H = Congested during heavy traffic, slower speeds and periodic dust; accommodates any legal-size load or vehicle.*

*I = Interrupted traffic flow, limited passing facilities, may not accommodate some vehicles. Low design speeds. Unstable surface under certain traffic or weather.*

*N/A = Not applicable*

With regard to Primary Project Roads on City of San Bernardino and State of California lands, DWR generally maintains these roads in compliance with current protocols. DWR's maintenance of Primary Project Roads, regardless of land ownership, as described below.

### **3.1.1 Short- and Long-Term Maintenance Program**

In general, DWR's maintenance program has two components with regard to timing of Primary Project Road maintenance activities: short-term and long-term maintenance. Short-term Primary Project Road maintenance is defined as routine or periodic repairs, inspections, and maintenance activities conducted annually, periodically, or seasonally to address normal wear and tear during Primary Project Road use under typical annual weather conditions. Long-term maintenance is defined as repairs that are scheduled around specific events that impact the overall integrity of a given Primary Project Road, such as heavy-haul events or unusually heavy storm events; such events require repairs that are beyond the scope and budget of the short-term Primary Project Road maintenance procedures. Long-term Primary Project Road repairs are normally undertaken in addition to short-term Primary Project Road maintenance activities. Further details regarding components of the short- and long-term maintenance programs are described below.

#### ***3.1.1.1 Short-Term Maintenance of Primary Project Roads***

Short-term maintenance of Primary Project Roads generally includes annual maintenance of the travel surface such as spot treatment of asphalt paving, blading dirt and aggregate surfaces, filling in pot holes, minor and major trimming of vegetation along the travel surface edge to maintain a line of sight for safety purposes and provide ample room for vehicle travel, and repairing/replacing signs and markers. Short-term maintenance may also include routine inspection and maintenance of Primary Project Road drainage features, such as periodically inspecting and clearing culverts and drainage ditches, rock fall cleanup, and landslide cleanup and repair, as needed, to mitigate erosion, stabilize hillslopes, and restore proper function of drainage features. In addition, work may include maintaining water bars for Primary Project Roads that are infrequently used, and maintaining gates. Primary Project Roads are normally inspected regularly throughout the year by DWR Operations staff as they travel the roads for operations of the Project, with increased attention paid to reporting/repairing Primary Project Road drainage and damage issues observed during periodic rainfall and runoff events.

Under short-term maintenance, repairs are typically completed as soon as possible after identification of a problem, often related to a periodic weather event. Depending upon the identified problem (e.g., plugged culvert and road obstruction), DWR usually prioritizes scheduling the needed repair with respect to safety and impacts and liabilities, and completes the needed repair as soon as possible. For other repairs, such as a damaged or missing sign, a replacement sign is usually ordered, which may take several weeks to receive, and is then installed.

DWR may also address hazard trees under short-term maintenance. For this Plan, a hazard tree is a tree along a Primary Project Road that is likely to fall under natural conditions within the foreseeable future and that will pose a risk to the Primary Project Road, members of the public using the Primary Project Road, or DWR Operations staff maintaining the Primary Project Road. Hazard trees may or may not be within the Project boundary. DWR typically handles hazard trees on a case-by-case basis and based on visual inspection by DWR Operations staff. Annually, and after a large event (e.g., fire or early/late snowfall or wind storm), Primary Project Roads are usually examined for hazard trees which may have been healthy but now represent a hazard. Specific measures for management of hazard trees are discussed in DWR's relicensing Integrated Vegetation Management Plan (IVMP).

Short-term maintenance procedures may also include annual development of a list of priority sites for Primary Project Road-related repairs for the upcoming year. Depending upon the magnitude of cost to repair a given location on the list, the actual repair at that location may fall under short- or long-term maintenance. Short-term maintenance is budgeted annually by DWR.

### **3.1.1.2 Long-Term Maintenance of Primary Project Roads**

In general, long-term maintenance of Primary Project Roads is geared towards major repairs that occur infrequently and is usually related to road damage caused by a heavy haul project, a major flood event that caused washouts, and other road-related damage at a scale that is beyond the scope of the short-term maintenance budget. Long-term maintenance may also occur at the end of a road's expected life, such as repaving the entire road. For heavy haul-type projects, the costs of major Primary Project Road repairs are typically included in the overall funding of the Project. Long-term maintenance activities are normally completed in a timely manner where public safety or additional facilities/resource damage is a concern.

### **3.1.2 Primary Project Road Maintenance Measures**

All traffic control devices (e.g., signs and road markings) on all Primary Project Roads, regardless of land ownership, are typically maintained according to the schedules outlined below in order to conform to the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD) (DOT 2012). Additionally, when signs are replaced or modified, they usually conform to the MUTCD and DWR's internally defined standards, as well as standards required by USFS if the sign occurs on a Primary Project Road on NFS lands. If DWR proposes a new Primary Project Road during the term of the new license, it will conform to current standards.

Road maintenance best management practices are used to guide the types of road treatments and the resource protection measures needed to mitigate the potential environmental impacts from road use. For Primary Project Roads on NFS lands, the designated USFS ML is usually used to identify the type, scope, frequency, and cost of road maintenance activities. DWR will maintain Segment 2 of the Tunnel Portal Access Road and the Surge Chamber Access Road (Table 2.1-1), which are on NFS lands, to

ML 2 standard, with the exception of the paved travelway, which will be managed to ML 4 standards. For Primary Project Roads not on NFS lands, the road surface type and ongoing level of use is usually used to define the road maintenance measures.

In general, Primary Project Roads on NFS lands have a paved or native surface designed for daily to weekly use by passenger trucks (Table 2.2-1). For Primary Project Roads with a paved surface travel way, road maintenance activities usually include: ditch grading and cleaning; culvert cleaning and repair; road drain cleaning and repair; road patching and re-surfacing; vegetation trimming along the travel surface edge to maintain a line of sight and provide ample room for vehicle travel; vehicle clearance for safety purposes; and erosion control and hillside stabilization to prevent landslides. For Primary Project Roads with a native surface travel way, road maintenance activities usually include: ditch grading and cleaning; culvert cleaning and repair; road drain cleaning and repair; road surface blading; minor and major vegetation trimming along the travel surface edge to maintain a line of sight and vehicle clearance for safety purposes and to provide ample room for vehicle travel; and erosion control and hillside stabilization to prevent landslides.

Normally, annual vegetation management along Primary Project Roads on NFS lands is performed by mastication, unless the SBNF explicitly agrees that DWR may use herbicides. Annual vegetation management along Primary Project Roads not on NFS lands is normally performed by mastication and herbicides applied by licensed herbicide applicators. Specific measures regarding vegetation management along Primary Project Roads are presented in DWR's relicensing IVMP.

Culvert replacements on Primary Project Roads on NFS lands are usually sized according to requirements in the SBNF Land Management Plan, as amended; other USFS directives; and in consultation with SBNF staff. Design of culvert replacements may vary based on location, but meet relevant guidelines for passage of wildlife and fish. Culvert replacements on Primary Project Roads not on NFS lands are usually designed to meet applicable standards.

### **3.1.3 Road Rehabilitation Measures**

## **3.2 PRIMARY PROJECT TRAILS**

DWR does not maintain any trails for foot or OHV access to Project facilities, other than those related to recreation. Those trails are addressed in DWR's relicensing RMP.

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

### **4.1 CONSULTATION AND REPORTING**

DWR will annually review with the SBNF activities related to Primary Project Roads and Trails on NFS lands completed in the previous calendar year, as well as any activities planned for Primary Project Roads and Trails on NFS lands for the current calendar year. In addition, DWR will consult with the SBNF, as needed, regarding Primary Project Roads, and Primary Project Trails on NFS lands if any Primary Project Roads or Trails are added to or removed from the Project.

### **4.2 PLAN REVISIONS**

DWR, in consultation with the SBNF, will review, update, and/or revise this Plan as it pertains to Primary Project Roads and Trails on NFS lands. Any updates to the Plan will be prepared in coordination and consultation with the SBNF if the update pertains to non-recreation Primary Project Roads or Trails on NFS lands. Sixty days will be allowed for the SBNF to provide written comment and recommendations before DWR files the updated Plan with FERC for FERC's 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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## 5.0 REFERENCES CITED

- U.S. Department of Agriculture, Forest Service (USFS). 2005a. Land Management Plan, Part 2 San Bernardino National Forest Strategy. September. Available online:  
[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fsbdev7\\_007719.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev7_007719.pdf)
- \_\_\_\_\_. 2005b. National Inventory and Assessment Procedure. National Technology and Development Program, San Dimas, California. November. Available online:  
<https://www.fs.fed.us/biology/nsaec/fishxing/publications/PDFs/NIAP.pdf>
- U.S. Department of Transportation (DOT). 2012. Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition, including Revisions 1 and 2. Prepared by Federal Highway Administration.

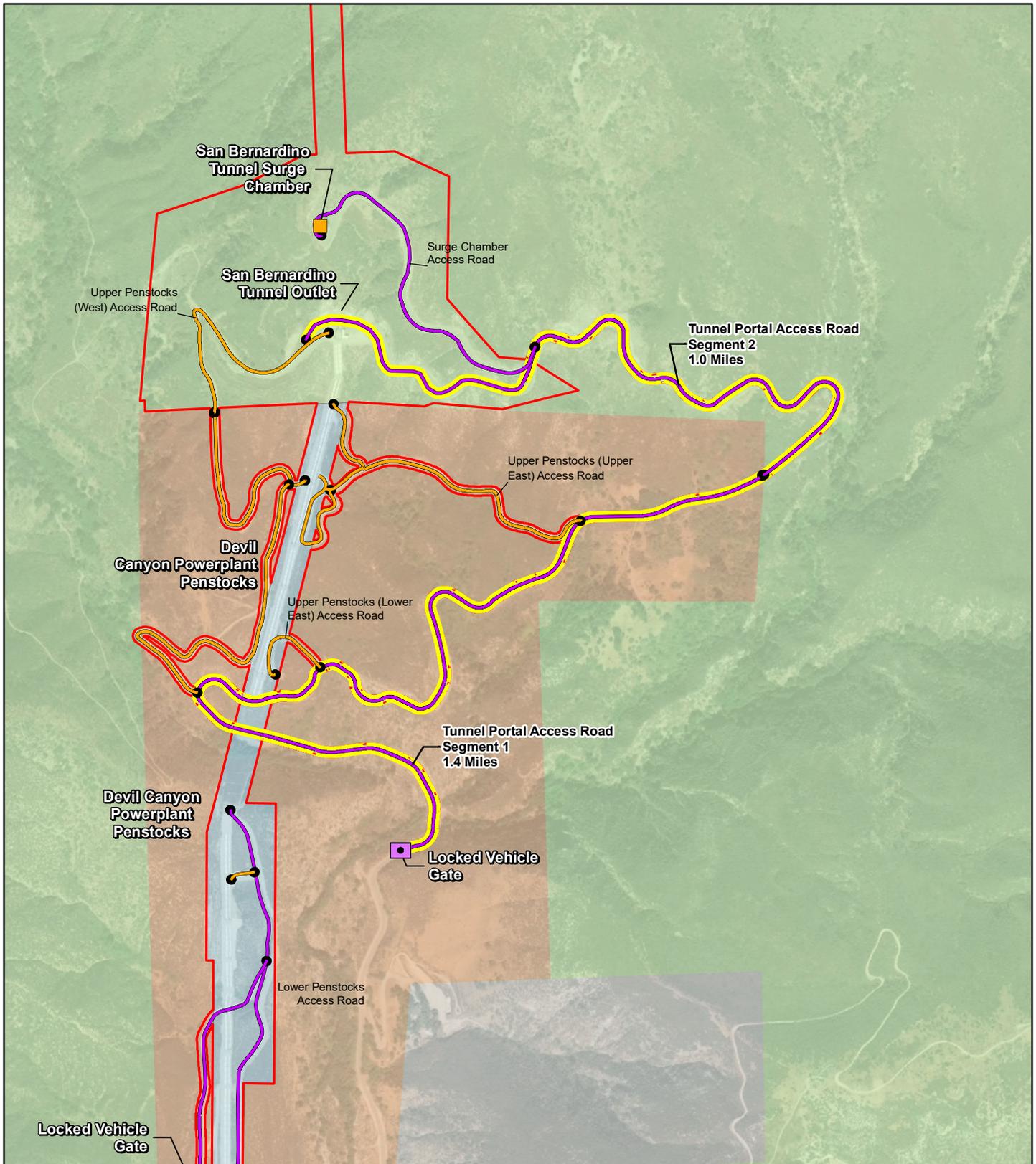
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## **Appendix A**

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### ***Primary Project Roads***

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- Project Road Segment**
- Project Boundary Devil Canyon
- Surface**
- Paved
  - Native
- Land Ownership**
- City of San Bernardino
  - US Forest Service
  - State of California
  - Private (or Other)

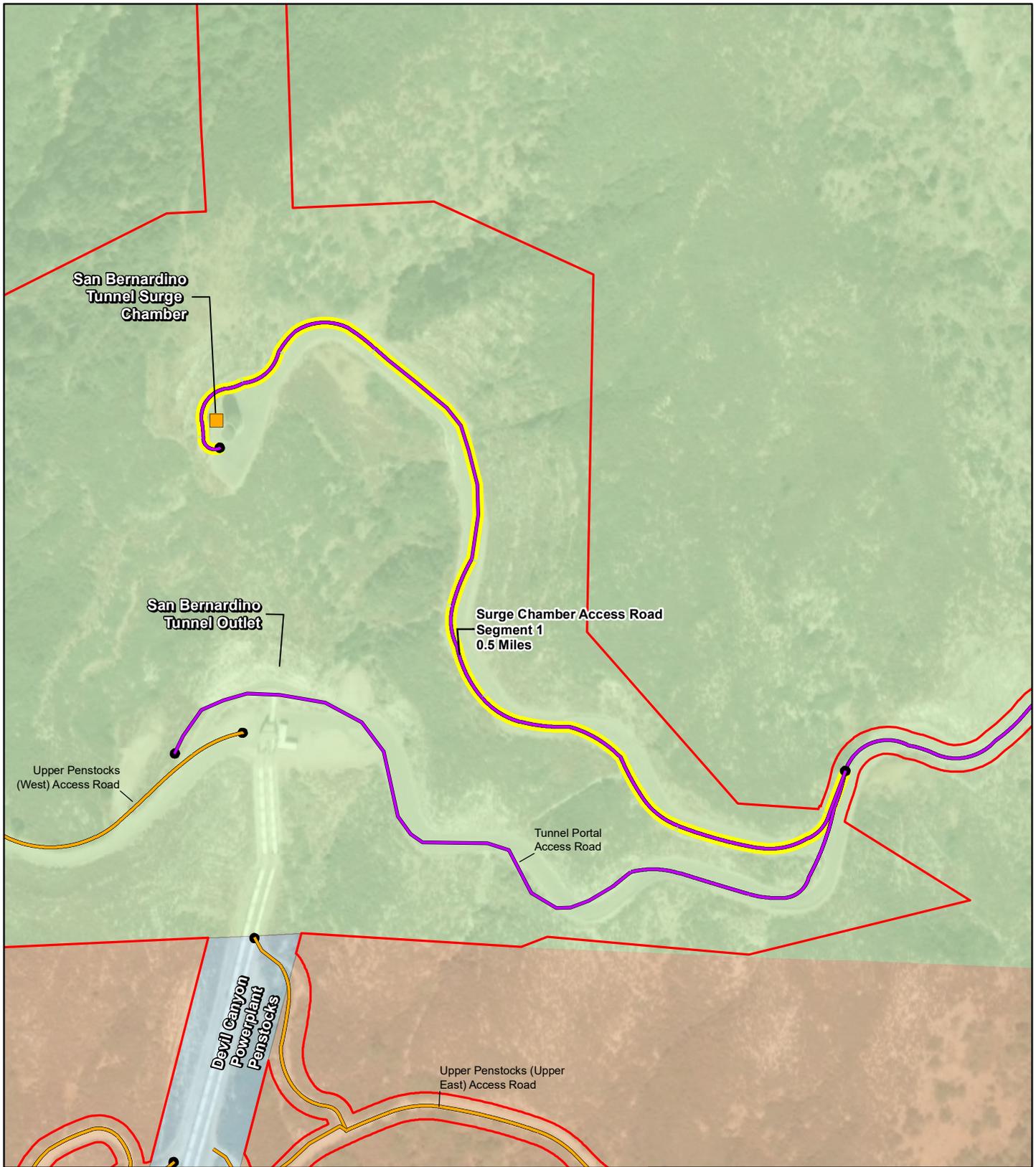
Prepared: 10/23/2019  
 Projection: CA StatePlane Zone 5, US FT  
 Data and/or Background: Esri Imagery,  
 CA DWR Roads.



DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 1 OF 10



**TUNNEL PORTAL ACCESS  
 ROAD**  
 (Road Highlighted in Yellow)



<b>Project Road Segment</b>	Project Boundary Devil Canyon
<b>Surface</b>	Paved
	Native
<b>Land Ownership</b>	City of San Bernardino
	US Forest Service
	State of California

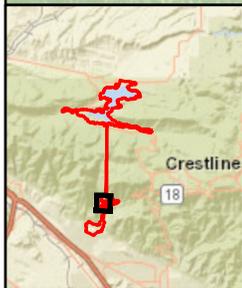
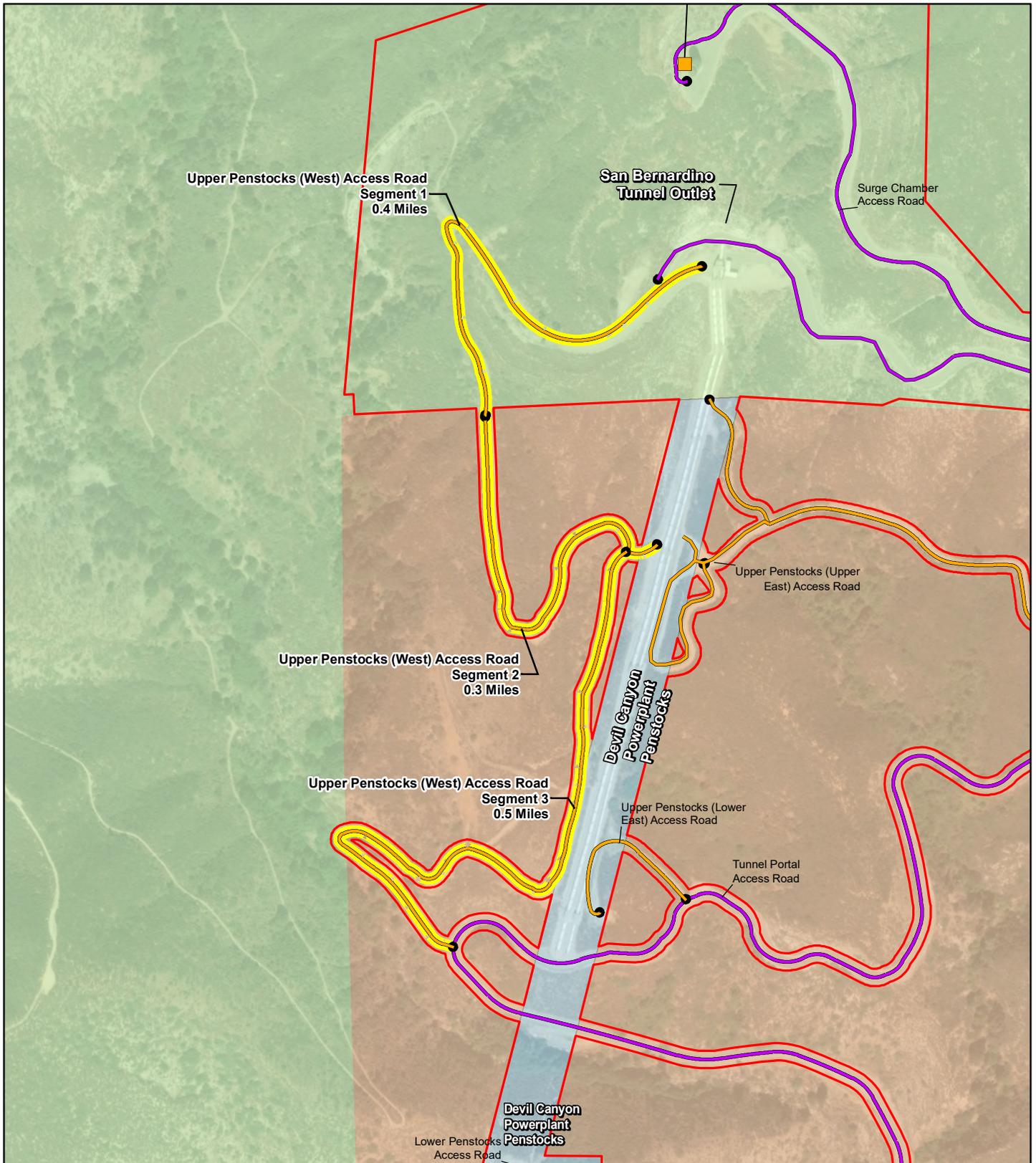
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 Data and/or Background: Esri Imagery, CA DWR Roads.

0      240      480  
 Feet

DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 2 OF 10



**SURGE CHAMBER ACCESS ROAD**  
 (Road Highlighted in Yellow)



- |  |  |
|--|--|
| <b>Project Road Segment</b>  | <span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px;"></span> Project Boundary Devil Canyon                       |
| <b>Surface</b>   | <b>Land Ownership</b>  |
| <span style="border-bottom: 2px solid purple; width: 20px; display: inline-block;"></span> Paved | <span style="background-color: #f4a460; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> City of San Bernardino |
| <span style="border-bottom: 2px solid black; width: 20px; display: inline-block;"></span> Native | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> US Forest Service      |
|  | <span style="background-color: #add8e6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> State of California    |

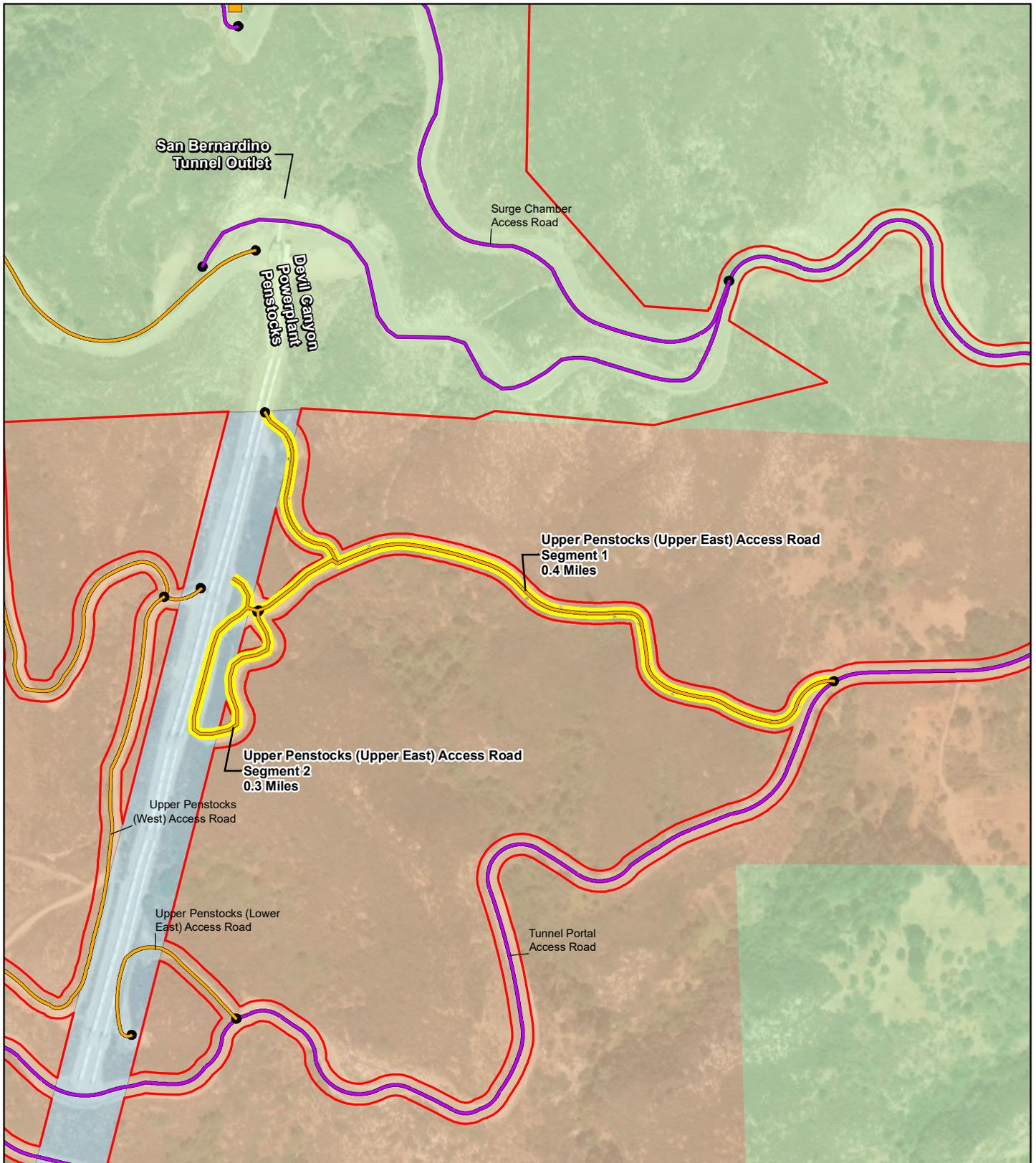
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 CA DWR Roads.



DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 3 OF 10



**UPPER PENSTOCKS (WEST)  
 ACCESS ROAD  
 (Road Highlighted in Yellow)**



<b>Project Road Segment</b>	<span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px;"></span> Project Boundary Devil Canyon
<b>Surface</b>	<span style="border-bottom: 2px solid purple; width: 20px; display: inline-block;"></span> Paved
	<span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> Native
<b>Land Ownership</b>	<span style="background-color: #f4a460; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> City of San Bernardino
	<span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> US Forest Service
	<span style="background-color: #add8e6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> State of California

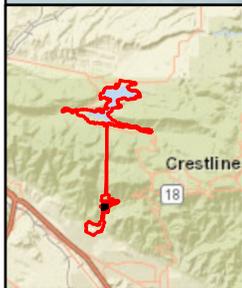
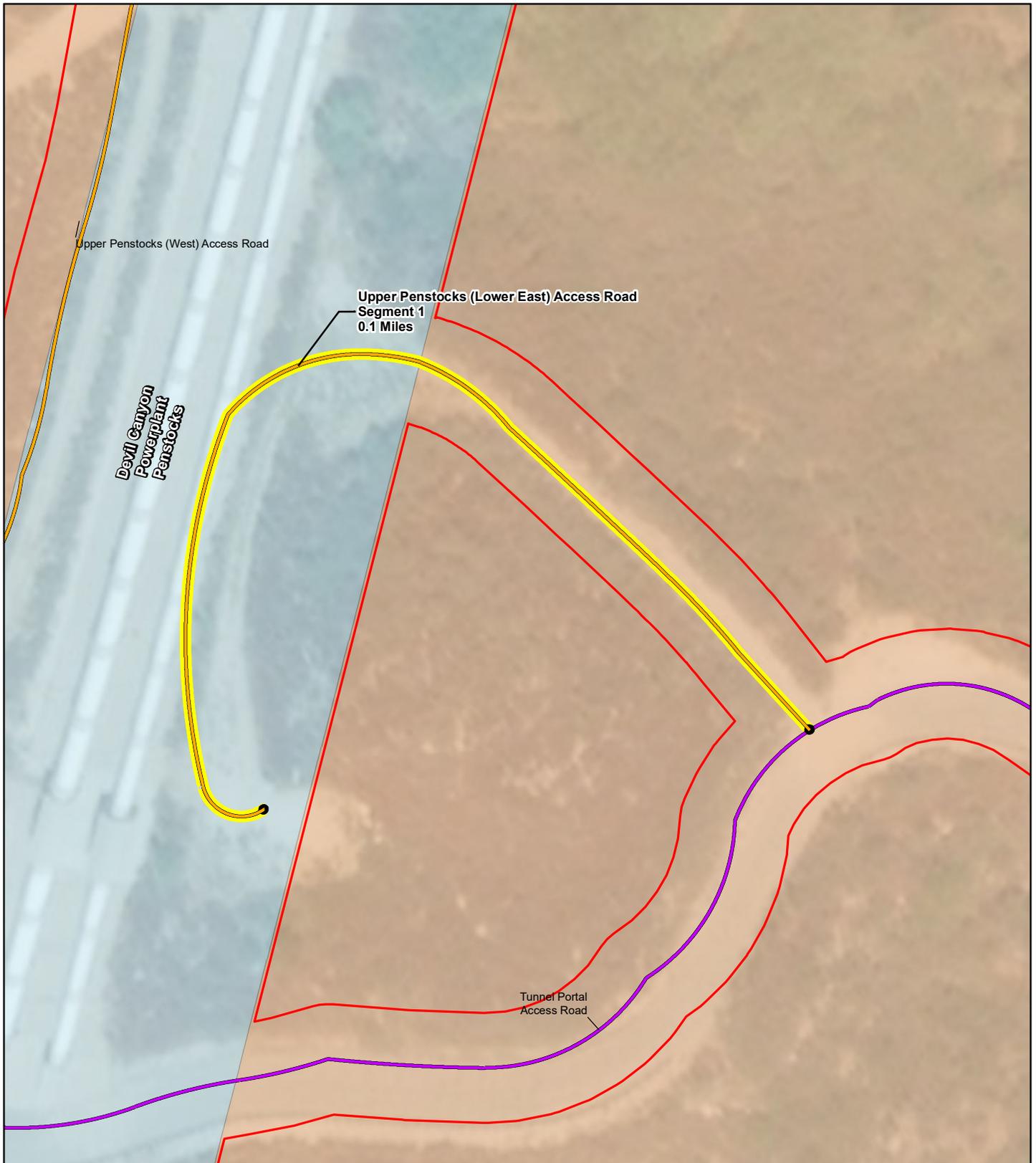
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 CA DWR Roads.



DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 4 OF 10



**UPPER PENSTOCKS (UPPER EAST) ACCESS ROAD**  
 (Road Highlighted in Yellow)



**Project Road Segment**  Project Boundary Devil Canyon

**Surface**

- Paved
- Native

**Land Ownership**

- City of San Bernardino
- State of California

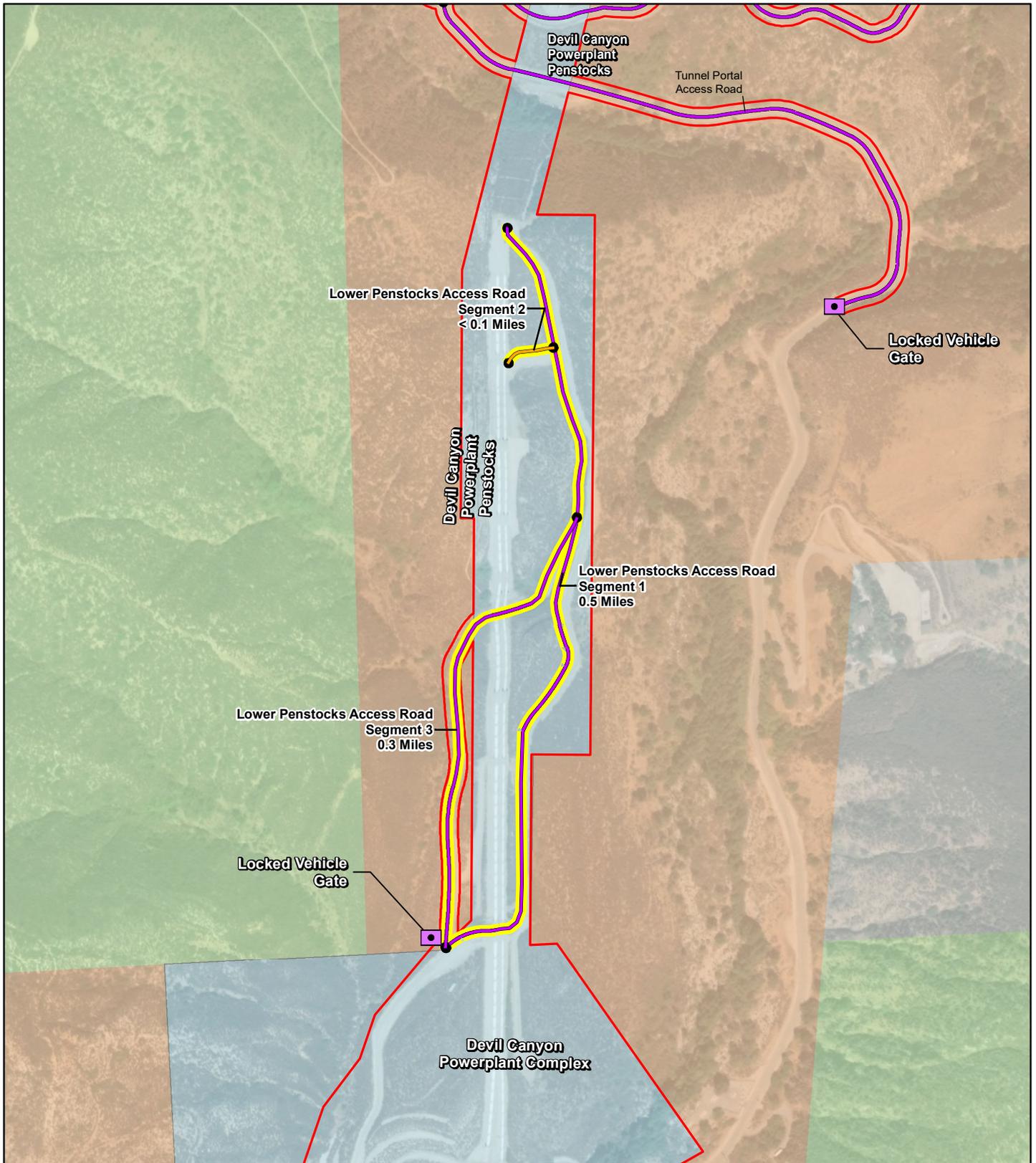
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 CA DWR Roads.



DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 5 OF 10



**UPPER PENSTOCKS (LOWER EAST) ACCESS ROAD**  
 (Road Highlighted in Yellow)



- Project Road Segment**
- Project Boundary Devil Canyon
- Surface**
- Paved
  - Native
- Land Ownership**
- City of San Bernardino
  - US Forest Service
  - State of California
  - Private (or Other)

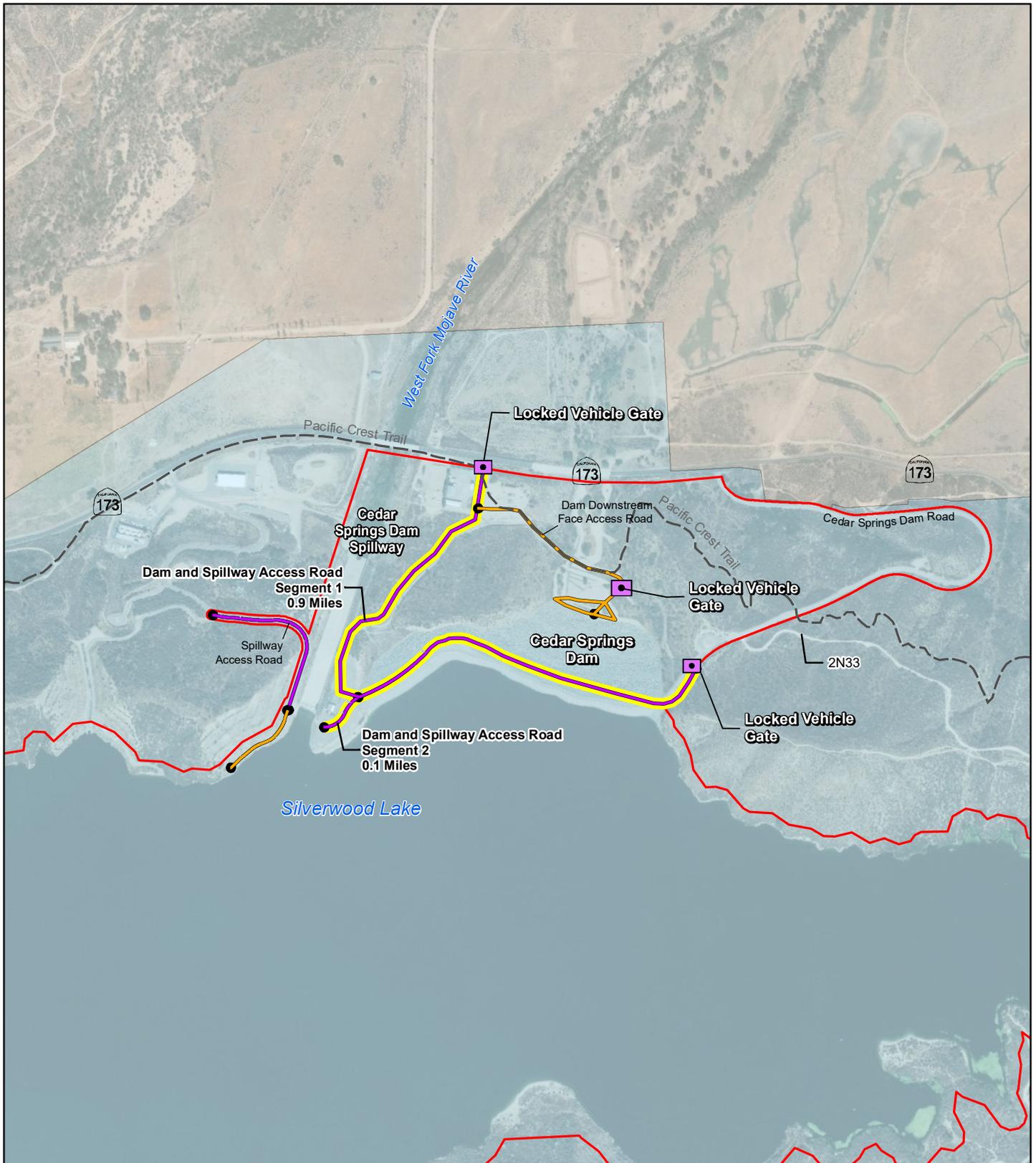
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 CA DWR Roads.



DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 6 OF 10



**LOWER PENSTOCKS ACCESS ROAD**  
 (Road Highlighted in Yellow)



- - - Pacific Crest Trail     Project Boundary Devil Canyon  
**Project Road Segment**  
**Surface**  
 Paved  
 Native

**Land Ownership**  
 US Forest Service  
 State of California  
 Private (or Other)

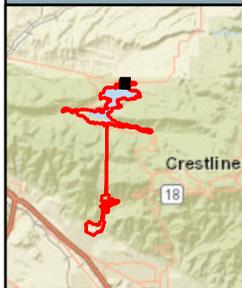
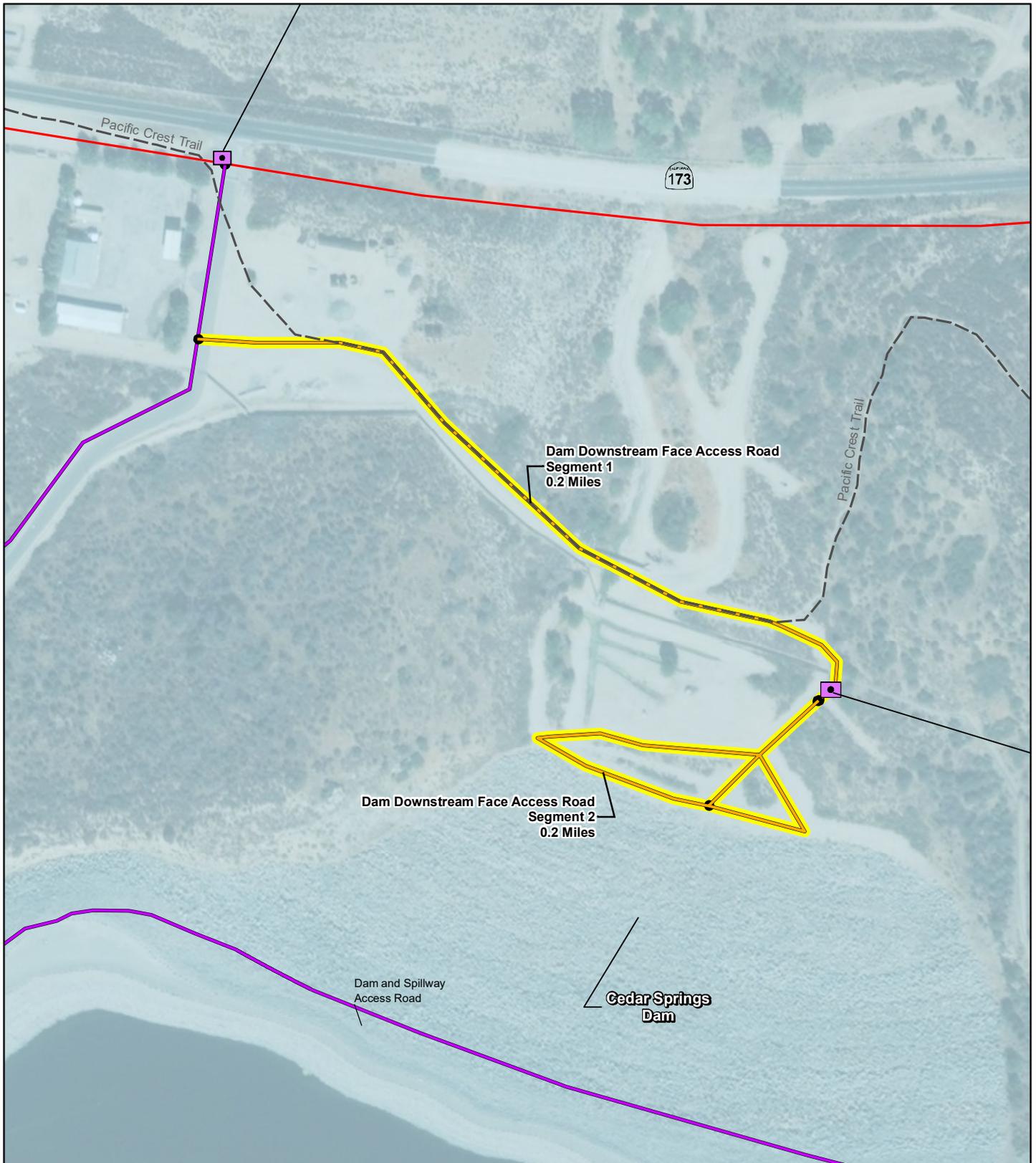
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Feet  
 0      700      1,400

DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 7 OF 10



**DAM AND SPILLWAY ACCESS ROAD**  
(Road Highlighted in Yellow)



- - - Pacific Crest Trail  Project Boundary Devil Canyon  
**Project Road Segment** **Land Ownership**  
**Surface**  
●—● Paved  
●—● Native  
 State of California

Prepared: 10/23/2019  
 Projection: CA StatePlane Zone 5, US FT  
 Data and/or Background: Esri Imagery,  
 CA DWR Roads.

Feet  
 0      160      320

DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 8 OF 10



**DAM DOWNSTREAM FACE  
 ACCESS ROAD  
 (Road Highlighted in Yellow)**



**Project Road Segment**  Project Boundary Devil Canyon

**Surface**

- — ● Paved
- — ● Native

**Land Ownership**

- State of California

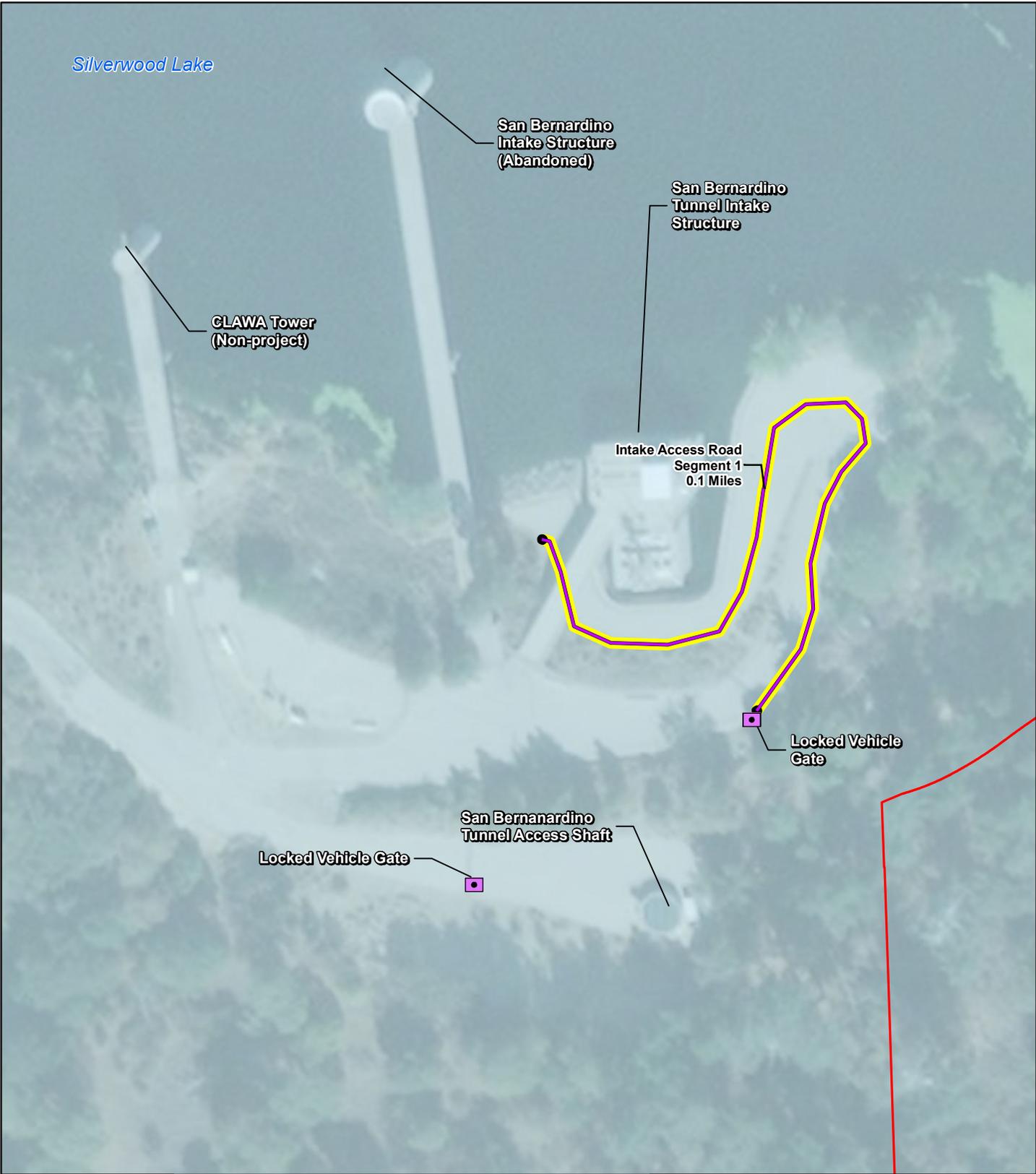
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Feet  
 0      140      280

DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 9 OF 10



**SPILLWAY ACCESS ROAD**  
 (Road Highlighted in Yellow)



**Project Road Segment**  Project Boundary Devil Canyon

**Surface**

- Paved
- Native

**Land Ownership**

- State of California

Prepared: 10/23/2019  
 Projection: CA StatePlane Zone 5, US FT  
 Data and/or Background: Esri Imagery,  
 CA DWR Roads.



DEVIL CANYON PROJECT RELICENSING  
 TRANSPORTATION SYSTEM MANAGEMENT PLAN  
 ATTACHMENT A - PRIMARY PROJECT ROADS  
 FIGURE 10 OF 10



**INTAKE ACCESS ROAD  
 (Road Highlighted in Yellow)**