Kaweah Project, FERC Project No. 298

LAND 1 – Transportation System
Final Technical Study Report

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List of Acronyms

BLM	Bureau of Land Management
FERC	Federal Energy Relicensing Commission
GIS	Geographic Information System
NPS	National Park Service
Project	Kaweah Project, FERC Project No. 298
SCE	Southern California Edison Company
TSP	Technical Study Plan
TSR	Technical Study Report
USFS	U.S. Forest Service
UTM	Universal Transverse Mercator

1 INTRODUCTION

This Technical Study Report (TSR) describes the data and findings developed by Southern California Edison Company (SCE) in association with implementation of the LAND 1 – Transportation System Technical Study Plan (LAND 1 – TSP) for the Kaweah Project (Project). The LAND 1 – TSP was included in SCE's Revised Study Plan (RSP)[1] (SCE 2017a) and was approved by the Federal Energy Regulatory Commission (FERC) on October 24, 2017, as part of its Study Plan Determination for the Project (FERC 2017). Specifically, this report provides a description of the methods and results of transportation studies completed in 2018.

2 STUDY OBJECTIVES

The LAND 1 – TSP included five study objectives, as follows:

- Inventory and assess condition of Project access roads and trails.
- Characterize SCE's use of Project access roads and trails, including season of use and level of use.
- Characterize SCE's current maintenance practices and responsibilities.
- Identify existing agreements related to Project access roads and trails (e.g., maintenance agreements, easements, rights of way, special use permits).
- Identify the location, condition, use, and maintenance of helicopter landing sites utilized for routine operation and maintenance of the Project.

3 EXTENT OF STUDY AREA

The study area includes all Project access roads and trails that are used for operation and/or maintenance of the Project. All roads and trails included in the study area are identified on Table LAND 1-1 and shown on Map LAND 1-1a-h.

4 STUDY APPROACH AND METHODS

This section describes the technical approach used to implement the LAND 1 – TSP. The information presented in this report was obtained during in-person meetings and through e-mail correspondences with SCE personnel, and land and recreation planners and managers from Tulare County, the Bureau of Land Management (BLM), and the National Park Service (NPS). Table LAND 1-2 identifies the key SCE and agency representatives that provided information that was used to implement the LAND 1 – TSP.

4.1 Project Access Roads and Trails

4.1.1 Identification of Project Access Roads and Trails

Project roads and trails that SCE uses to access the Project facilities were initially identified and mapped in 2016 and identified in the Pre-Application Document (SCE 2016) for the Project. A list of existing Project access roads and trails was also included in the LAND 1 – TSP. In 2018, the list was updated by SCE in conjunction with this study. Field verification of the location of existing Project access roads and trails (included on the updated list) occurred during the 2018 roads and trails assessment, described

[1] SCE filed a Proposed Study Plan (PSP) on May 24, 2017 (SCE 2017b). Three comments were filed on the PSP; however, they did not result in revisions to any of the study plans. Therefore, SCE filed a Revised Study Plan (RSP) on September 19, 2017, which stated that the PSP, without revision, constituted its RSP. The FERC subsequently issued a Study Plan Determination on October 24, 2017, approving all study plans for the Kaweah Project.

below. Updated Geographic Information System (GIS) maps of the Project access roads and trails were developed based on the survey data. GIS data layers are available to the BLM upon request.

4.1.2 Field Assessment of Project Access Roads and Trails

A field assessment to characterize the current condition of the Project access roads and trails, including associated drainage and safety features, was conducted in 2018. The assessment methodology was developed in coordination with the BLM and considered both typical BLM road survey protocols (BLM 2006a, 2006b, 2012, and 2015) and the requirements outlined in the LAND 1 – TSP. Data collected during the road and trail assessment included:

- Length, general width, and terrain characteristics of Project access roads and trails;
- Type and/or changes in surface treatment (e.g., paved, aggregate, native) and condition;
- Location, size, and condition of culverts and other drainage features;
- Location and condition of bridge crossings;
- Location and condition of erosion control features;
- Location and condition of safety, traffic control, and information signs and access control features such as gates and other closure methods;
- Identification of potential traffic safety concerns such as blind spots, poor sight distance, inadequate signage, and hazard trees; and
- Identification of potential natural resource issues that may occur along Project access roads and trails, such as stream crossings and riparian areas.

Pedestrian surveys were completed along all of the Project access roads and trails included in Table LAND 1-1. A minimum of two individuals conducted the surveys, walking the roads and trails, looking for and recording features on or adjacent to the Project access roads and trails. Each road and trail and their associated features were mapped using a Trimble GeoXT 6000 device. In accordance with BLM road surveying protocol, a beginning and ending termini was established for each road and trail, and a photograph was taken at each termini. A centerline data-point was recorded approximately every 25 feet. At the end of each road or trail surveyed, general notes about overall condition, natural resources present, and safety were recorded. Roads under BLM jurisdiction were also segmented per BLM protocol.

Feature codes were recorded for specific road features observed during the surveys. Surveyed features were assigned codes adapted from the U.S. Forest Service (USFS) protocol[2]. These codes are provided in Appendix A. The feature codes are classified by categories such as surface type, road width, terrain deviation, drainage, signage, road closure devices, and other miscellaneous features. Each road feature was photographed and surveyors recorded the corresponding GPS point and other descriptive supplemental information such as size and condition of the feature. All feature data collected was processed and further categorized for reporting purposes as either a road/trail feature, drainage feature, or safety feature.

Information on natural resources along Project access roads and trails, such as stream crossings, riparian areas, sensitive biological resources, and noxious weeds were identified from the following sources:

- USGS maps (hydrographic features);
- Draft TERR 1 – Botanical Resources Technical Study Report (SCE 2019a); and
- Draft TERR 2 – Wildlife Resources Technical Study Report (SCE 2019b).

[2] USFS code schema provided a readily available, robust framework that could easily be modified to collect data called out in BLM's H-9113-2 – Road Inventory and Condition Assessment Guidance and Instructions (May 4, 2015).

4.1.3 Project Access Road and Trail Use, Maintenance, and Agreements

To characterize use, maintenance, and agreements associated with Project access roads and trails, research and interviews were conducted with: (1) SCE personnel with detailed knowledge of Project operations, and; (2) BLM staff with responsibility for managing lands in the Project area and vicinity. The following information was identified and compiled:

- SCE's use of Project access roads and trails, including season of use and level of use;
- Other uses of Project access roads and trails;
- SCE's maintenance practices, responsibilities, and schedule; and
- Existing maintenance agreements, easements, rights of way, and special use permits.

4.2 Helicopter Landing Sites

Helicopter landing sites that are used for routine operation and maintenance of the Project were identified through interviews with SCE staff.

5 STUDY RESULTS

5.1 Project Access Roads and Trails

5.1.1 Identification of Project Access Roads and Trails

An updated list of Project roads and trails used by SCE to access Project facilities is included in Table LAND 1-1. Modifications to the Project access road and trail facilities list included in the LAND 1 – TSP were made based on the field assessment completed in 2018 and based on information provided by SCE regarding access and use.

Table LAND 1-1 identifies specific changes that were made to the Project roads and trails list based on the results of the Project road and trail assessment conducted as part of this study. Specific changes include the following:

- Kaweah No. 1 Flowline Access Road – Lumberyard (spur) and Kaweah No. 1 Flowline Access Road – Lower Pine (spur) were added.
- Kaweah No. 1 Flowline Access Trail – Unnamed was added.
- Kaweah No. 2 Flowline Access Trail – Canal 4 was divided into two distinct segments: Canal 4 East and Canal 4 West.
- The Kaweah No. 1 Flowline Access Trail – Grand Canyon and Kaweah No. 1 Solar Panel Access Trail were removed because they are no longer maintained by SCE as part of the Project.

Map LAND 1-1a-h identifies the location of Project access roads and trails in relation to the current Project facilities and FERC Project boundary. Based on surveys, slight modifications were made to beginning and ending termini for Project access roads and trails, where appropriate, to reflect information on Exhibit G's, improved information that was collected via GPS or high-resolution imagery, and updated jurisdictional boundary information obtained by BLM.

5.1.2 Field Assessment of Project Access Roads and Trails

Two main paved roads provide the primary access to the Kaweah Project vicinity – State Highway 198, which parallels the Kaweah River, and Mineral King Road, which parallels the East Fork Kaweah River. Several other public paved roads provide indirect access to Project facilities, including Dinely Road, Kaweah River Drive, Craig Ranch Road, and North Fork Drive.

Project access roads and trails are defined as roads and trails that are used almost exclusively by SCE for operation and/or maintenance of the Project. The Project facilities are located on private property and public land managed by the BLM. Therefore, roads and trails associated with the Kaweah Project fall into one of the following categories:

- Project access road extends off a public roadway and is gated to restrict public access. Gate is located at the entrance to the Project access road and use is limited to SCE personnel.
- Project access road extends off a public roadway and is partially gated to restrict public access. Gate location allows public access to a portion of the Project access road, however, beyond the gate use is limited to SCE personnel.
- Project access road extends off a public roadway and is gated to restrict general public access, however, access is granted to property owners with a key.
- Project access road extends off a public roadway and is not gated. Road is multi-purpose and is used by SCE to access Project facilities, but also provides local residential access or is used unofficially by recreation visitors for various pursuits, including hiking, walking, and biking.
- Project trail extends off Project road and provides access to Project facilities. Trails generally extend from gated roads so public access is limited.
- Project trail extends off Project road and provides access to the river.

Assessment of Roads and Trails

A field assessment of the Project access roads and trails based on the LAND 1 – TSP and BLM protocols was completed in 2018. Detailed data that was collected and used to characterize the Project access roads and trails is compiled in Appendix B. In addition, information about each road and trail is summarized on Table LAND 1-3, including start/end points, overall length and width, surface treatment, overall condition, and general observations.

Inventory of Road and Trail Features

A detailed inventory and description (including condition) of all Project access road and trail features is provided in Appendix C. Each feature was categorized as either a road/trail feature, drainage feature, or safety feature. Road/trail features include areas of significant damage, surface changes, parking areas, or general remarks about condition. Drainage features include waterbars, culverts, or other drainage/erosion control features like dips or ditches. Safety features include gates or other closure devices, turnouts, informational signs, bridges, and cattle guards. The location of observed features, surveyed via GPS, has been provided in Universal Transverse Mercator projection (UTM) coordinates (Zone 11N, NAD83, meters) and their condition categorized as good, fair, or poor.

Appendix D includes a selection of representative photographs that were taken during the road and trail assessment showing road condition and various survey features.

Identification of Safety Concerns

To protect public safety, public access is limited on most of the Project access roads and trails by locked gates, and generally discouraged with no trespassing signs. No significant safety issues were identified along the Project access roads and trails that are open to public use. In general, sight distance along Project roads is good, but several “blind spots” were identified where select Project roads intersect Mineral King Road (a non-Project road) and along the Kaweah No. 2 Flowline East Access Road. Blind spots are identified in Appendix C. Hazard trees were not present along any of the Project access roads and trails at the time the surveys were conducted. Potential safety concerns are identified in the table provided in Appendix C. The primary safety issues that were identified through discussions with SCE are summarized in the following:

- Kaweah No. 1 Flowline Access Road – Summit (gated): This road is a primitive road with steep grades and no turn around and is in poor condition. SCE personnel indicated that this road could be hazardous to drive due to the steepness and overall poor road condition. As such, SCE requires staff that drive this road to use low center of gravity, four-wheel drive vehicles, with aggressive tires. Additionally, travel along this road is restricted during inclement weather. This road is gated to restrict use by the general public.
- Kaweah No. 1 Forebay Road (gated): This road is gated to prevent public vehicular access. However, several mountain bike trails that traverse the Case Mountain Recreation Area (managed by the BLM) intersect the Kaweah No. 1 Forebay Road. Therefore, mountain bike use occurs along this road, despite the gate. No signage is present where the trail and road intersect and the absence of signage was identified as a potential hazard.
- Kaweah No. 2 Flowline Access Trail – Open Siphon (not gated): The entrance to the trail is located at a blind corner along State Highway 198, with no turn out or parking.

Identification of Natural Resources

Table LAND 1-4 includes information related to stream crossings, riparian areas, and sensitive biological resources along Project access roads and trails.

5.1.3 Project Access Road and Trail Use, Maintenance, and Agreements

Road and Trail Use

Use of the Project roads and trails by SCE is summarized on Table LAND 1-5. As indicated, SCE uses all Project access roads and trails year round, with the exception of the following two roads that are not used during the winter due to their poor condition and steep grades: (1) Kaweah No. 1 Flowline Access Road – Summit (poor condition and steep); and (2) Kaweah No. 1 Flowline Access Road – Upper Pine (steep). Generally, the roads and trails that provide access to the primary Project facilities (i.e., forebays, penstocks, and powerhouses) are used more frequently than those that provide access to the flowlines or smaller facilities.

Table LAND 1-6 also identifies other uses of Project access roads and trails. As indicated, select Project roads and trails are used by private residents and recreation visitors. As stated above, several Project access roads are partially gated or not gated to allow local residents in the Project vicinity to access their property and/or homes. This predominantly occurs in the vicinity of the Kaweah No. 2 Development. Refer to Map LAND 1-1a-h.

SCE maintains one informal access point to the Kaweah River – Kaweah No. 2 Powerhouse River Access[3] (referred to as Edison Beach) otherwise there are no developed recreational facilities or trails associated with the Project. To protect public safety, SCE generally discourages general public use of the Project roads and trails with locked gates or signage. Although recreation is discouraged, SCE recognizes that incidental public recreation use of select Project roads and trails does occur. Table LAND 1-6 identifies which Project roads and trails are typically used for recreation purposes, based on observations by SCE personnel and on information provided by the resource agencies. Recreation use of the Project roads and trails generally consists of hiking, walking, biking, and fishing.

Road and Trail Maintenance

Maintenance of the Project access roads and trails is conducted by SCE. Table LAND 1-7 identifies the type and frequency of maintenance for each Project access road and trail. Project access roads are regularly inspected during normal Project activities. Minor repairs are conducted on an as-needed basis

[3] Refer to the Draft REC 1 – Recreation Resources Technical Study Report (SCE 2019c) for additional information on the Kaweah No. 2 Powerhouse River Access.

and major repairs are implemented annually during low-runoff periods (late summer/fall). Minor Project access road maintenance generally includes, but is not limited to, the following types of activities: debris removal; basic repairs, including filing of potholes; maintenance of erosion control features such as culverts, drains, ditches, and water bars; repair, replacement, or installation of access control structures such as posts, cables, rails, gates, and barrier rock; and repair and replacement of signage. Major Project access road maintenance generally includes, but is not limited to, the following types of activities: placement or replacement of culverts and other drainage features; bridge deck replacement; grading; sealing; resurfacing; and road replacement. Vegetation management may be conducted concurrently with road and trail maintenance on an as-needed basis.

Project access trails are regularly inspected during normal Project activities. Repairs are conducted on an as-needed basis typically during low-runoff periods (late summer/fall). Trail maintenance generally includes, but is not limited to, the following types of activities: debris removal; basic repairs including minor brushing; maintenance of erosion control features such as water bars; repair, replacement, or installation of access control structures such as barrier rock; and repair and replacement of signage. Vegetation management may be conducted concurrently with trail maintenance on an as-needed basis.

Road and Trail Agreements

Project access roads and trails are located on private lands and public lands administered by the BLM and the NPS. As such, in order to operate and maintain the Kaweah Project, SCE has acquired all necessary rights-of-way, leases, and other use approvals/agreements with private property owners, as appropriate. In addition, SCE has established similar agreements with the BLM and the NPS for use of access roads and trails located on public lands. Specifically, SCE obtained a right-of-way from the BLM and a Special Use Permit from the NPS for use of access roads and trails located on public lands managed by each agency.

5.2 Helicopter Landing Sites

The only helicopter landing site in the vicinity of the Project is the Ash Mountain Heliport, which is located 4 miles northeast of Three Rivers, California. The heliport is located within the SNP and therefore operated and managed by the NPS (refer to Map LAND 1-1d). Since the heliport is regularly used by the NPS and others (with permission from the NPS), the heliport is well maintained and in good condition.

Routine operation and maintenance activities associated with the Project do not involve the use of helicopters. Helicopters are used infrequently by SCE to assist during non-routine maintenance activities and capital projects. During these activities, helicopters may utilize the Ash Mountain Heliport with permission from the NPS. If the Ash Mountain site is unavailable, SCE has used the Woodlake Airport located approximately two miles south of Woodlake, California.

6 LITERATURE CITED

BLM (U.S. Bureau of Land Management). 2006a. Travel and Transportation Management Planning and conduction Route Inventories. Technical Reference 9113-1.

BLM. 2006b. Roads and Trail Terminology. Technical Note 422.

BLM. 2012. H-9115-2 – Primitive Roads Inventory and Condition Assessment Guidance and Instructions Handbook. Released March 6.

BLM. 2015. H-9113-2 – Road Inventory and Condition Assessment Guidance and Instructions. Released May 4.

FERC (Federal Energy Regulatory Commission). 2017. Study Plan Determination for the Kaweah Hydroelectric Project. 20171024-3021. October 24.

SCE (Southern California Edison Company). 2016. Kaweah Project Pre-Application Document. Filed with FERC on December 6.

SCE. 2017a. Kaweah Project, Revised Study Plan. Filed with FERC on September 19.

SCE. 2017b. Kaweah Project, Proposed Study Plan. Filed with FERC on May 24.

SCE. 2019a. Draft TERR 1 – Botanical Resources Technical Study Report, Kaweah Project.

SCE. 2019b. Draft TERR 2 – Wildlife Resources Technical Study Report, Kaweah Project.

SCE. 2019c. Draft REC 1 – Recreation Resources Technical Study Report, Kaweah Project.

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TABLES

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Table LAND 1-1. Project Access Roads and Trails

Project Access Roads
Kaweah No. 1 Development
Kaweah No. 1 Flowline Access Road – Bear Canyon
Kaweah No. 1 Flowline Access Road – Grapevine
Kaweah No. 1 Flowline Access Road – Lumberyard
Kaweah No. 1 Flowline Access Road – Lumberyard (spur)
Kaweah No. 1 Flowline Access Road – Slick Rock
Kaweah No. 1 Forebay Road
Kaweah No. 1 Intake Road
Kaweah No. 1 Flowline Access Road – Lower Pine
Kaweah No. 1 Flowline Access Road – Lower Pine (spur)
Kaweah No. 1 Flowline Access Road – Summit
Kaweah No. 1 Flowline Access Road – Unnamed
Kaweah No. 1 Flowline Access Road – Upper Pine
Kaweah No. 2 Development
Kaweah No. 2 Flowline East Access Road
Kaweah No. 2 Flowline Access Road – Open Siphon Grids
Kaweah No. 2 Flowline Access Road – Red Barn
Kaweah No. 2 Intake Road
Kaweah No. 2 Powerhouse Road
Kaweah No. 2 Flowline Center Access Road
Kaweah No. 2 Flowline Access Road – Canal 2 Brushout Grid
Kaweah No. 2 Flowline Access Road – Canal 4 East
Kaweah No. 2 Flowline Access Road – Canal 4 West
Kaweah No. 2 Flowline Access Road – Canal 5
Kaweah No. 2 Flowline Access Road – Canal 6 East
Kaweah No. 2 Flowline Access Road – Canal 6 West
Kaweah No. 2 Flowline Access Road – Flume 11
Kaweah No. 2 Flowline Access Road – Flume 8
Kaweah No. 2 Flowline West Access Road
Kaweah No. 2 Forebay Road
Kaweah No. 2 Penstock Road
Kaweah No. 3 Development
Kaweah No. 3 Powerhouse Road
Kaweah No. 3 Forebay Road

Project Trails
Kaweah No. 1 Development
Kaweah No. 1 Flowline Access Trail – Unnamed
~~Kaweah No. 1 Flowline Access Trail – Grand Canyon~~
~~Kaweah No. 1 Solar Panel Access Trail~~
Kaweah No. 2 Development
Kaweah No. 2 Flowline Access Trail – Canal 11
Kaweah No. 2 Flowline Access Trail – Canal 13
Kaweah No. 2 Flowline Access Trail – Canal 15
Kaweah No. 2 Flowline Access Trail – Canal 2
Kaweah No. 2 Flowline Access Trail – Canal 4 East
Kaweah No. 2 Flowline Access Trail – Canal 4 West
Kaweah No. 2 Flowline Access Trail – Canal 5
Kaweah No. 2 Flowline Access Trail – Canal 6
Kaweah No. 2 Flowline Access Trail – Open Siphon
Kaweah No. 2 Flowline Access Trail – Wildlife Crossing 2
Kaweah No. 2 Flowline Access Trail – Water User 14
Kaweah No. 2 Flowline Access Trail – Water User 9
Kaweah No. 2 Powerhouse River Access Trail
Kaweah No. 3 Development
Kaweah No. 3 Flowline Access Trail

Note: Red = Changes from LAND 1 – TSP

Table LAND 1-2. Consultation and Data Gathering Summary

Primary Contact	Date	Type of Correspondence[a]	Study Element		Discussion Summary
			Project Roads and Trails	Helicopter Landing Sites	
Tulare County					
Hector Guerra, Chief Planner	3/27/2018	e-mail	X		Provided overview of Kaweah Relicensing Project (Project) and requested meeting.
Timothy Baily, Planner IV	4/11/2018	telecom	X		Reviewed information about policies related to roads and criteria contained in the Tulare County General Plan and Three Rivers Community Plan. Reviewed Project area roads and trails and discussed recreational usage on Project roads and trails.
Bureau of Land Management (BLM)					
Brien Chartier, Outdoor Recreation Planner	4/11/2018	telecom	X		Discussed existing Project road and trail data and proposed field sampling protocol. Proposed sampling protocol was approved during meeting.
Romina Copado, GIS	4/16/2018	telecom	X		Requested additional GIS data and explanation of existing data within Project.

Primary Contact	Date	Type of Correspondence[a]	Study Element		Discussion Summary
			Project Roads and Trails	Helicopter Landing Sites	
Southern California Edison Company (SCE)					
James Kennard, Senior Manager; Marco Morales, Chief Operator; Gaspar Lopez, Civil Foreman; Mark Greene, Supervisor; Shane Schumacher, Operator; and Derrick Tito, Hydrographer Foreman	2/25/2015	in-person meeting	X		Identification of Project facilities including access of Project roads and trails. Obtained information about routine maintenance activities on Project roads and trails.
James Kennard, Senior Manager	4/8/2015	in-person meeting	X		Continued discussion of routine maintenance activities on Project roads and trails.
James Kennard, Senior Manager; Rob Biedermann, Senior Supervisor; Derrick Tito, Hydrographer Foreman; Carl Kauffman, Operator Mechanic; and Dave Moore, Generation and Hydro Licensing	3/12/2018	in-person meeting	X		Discussed field logistics including Project road and trail access and safety for field surveys.
Dave Moore, Generation and Hydro Licensing	3/16/2018	e-mail	X		Requested information about existing agreements on Project roads and trails.
Rob Biedermann, Senior Supervisor	4/18/2018	in-person meeting		X	Discussed Project area helicopter landing sites.
James Kennard, Senior Manager	5/8/2018	in-person meeting	X	X	Discussed SCE's road and trail usage, maintenance activities, and public recreation on Project roads and trails. Discussed routine operations and maintenance activities with helicopters.
James Kennard, Senior Manager and Rob Biedermann, Senior Supervisor	9/18/2018	telecom	X	X	Further discussion of helicopter usage, SCE's road and trail usage, and identification of potential safety concerns on Project roads and trails.

Notes:

[a] E-mail, telecom, in-person meeting

Table LAND 1-3. Characterization of Project Access Roads and Trails

Project Facility	Start	End	Overall Length		Width (feet)	Surface Treatment	Overall Condition	Comments
			Feet	Mile				
Project Access Roads								
Kaweah No. 1 Development								
Kaweah No. 1 Flowline Access Road - Bear Canyon	Mineral King Road	Kaweah No. 1 Flowline	130	0.025	8-12	Native	Good	Recently graded and in good condition. Good turnaround spot and safe exit to Mineral King Road.
Kaweah No. 1 Flowline Access Road - Grapevine	Mineral King Road	Kaweah No. 1 Flowline	1,591	0.301	8-12	Aggregate	Poor	Steep and eroded. Old waterbars with overgrown erosion features. Two good turnarounds, one by the end of flowline.
Kaweah No. 1 Flowline Access Road - Lumberyard	Mineral King Road	Kaweah No. 1 Flowline	216	0.041	8-12	Native	Good	Recently graded. Steep at bottom, but good turnaround exists.
Kaweah No. 1 Flowline Access Road - Lumberyard (spur)	Kaweah No. 1 Flowline Access Road - Lumberyard	Kaweah No. 1 Flowline	63	0.012	8-12	Native	Good	Spur accesses flowline.
Kaweah No. 1 Flowline Access Road - Slick Rock	Mineral King Road	Kaweah No. 1 Flowline	378	0.072	8-12	Native	Good	Overall good condition. Turnaround at end of road is steep with an alternative turnaround approximately 30 ft below.
Kaweah No. 1 Forebay Road	Craig Ranch Road	Kaweah No. 1 Flowline	14,250	2.699	8-12	Native	Fair to Good	Condition is fair due to broken pavement at start to good condition on dirt, recently graded with many of drainage features in good condition.
Kaweah No. 1 Intake Road	Mineral King Road	Kaweah No. 1 Flowline	1,164	0.220	8-12	Paved to Aggregate	Good	Changes from paved to aggregate, overall good condition.
Kaweah No. 1 Flowline Access Road - Lower Pine	Mineral King Road	Kaweah No. 1 Flowline	841	0.159	8-12	Aggregate	Good	Road condition is good, but steep. Multiple turnaround spots exist.
Kaweah No. 1 Flowline Access Road - Lower Pine (spur)	Kaweah No. 1 Flowline Access Road - Lower Pine	Kaweah No. 1 Flowline	129	0.024	8-12	Aggregate	Good	NA
Kaweah No. 1 Flowline Access Road - Summit	Mineral King Road	Kaweah No. 1 Flowline	2,525	0.478	8-12	Aggregate, Paved, Native	Poor	Road is steep with no turnarounds. Road damage is extensive with many erosion gullies. Water tank system follows road, pipe is exposed in several locations and driver could damage.
Kaweah No. 1 Flowline Access Road - Unnamed	Mineral King Road	Kaweah No. 1 Flowline	113	0.021	8-12	Native	Poor	Excessive vegetation, poor gate at bottom.
Kaweah No. 1 Flowline Access Road - Upper Pine	Mineral King Road	Kaweah No. 1 Flowline	767	0.145	8-12	Aggregate	Good	Recently graded, road condition is good, but steep. Good turnaround exists. Series of drainage features and waterbars in mostly good condition.
Kaweah No. 2 Development								
Kaweah No. 2 Flowline East Access Road	Dinely Road	Canyon View Drive	8,259	1.564	8-12	Paved to Aggregate	Good	Well-travelled road in good condition. Two private gates encountered, both open, first marked "no trespassing". Culverts generally well maintained.
Kaweah No. 2 Flowline Access Road - Open Siphon Grids	Kaweah No. 3 Powerhouse Road	Kaweah No. 2 Flowline	287	0.054	8-12	Aggregate	Good	Loose aggregate exists. Well maintained ditches and culverts.
Kaweah No. 2 Flowline Access Road - Red Barn	Dinely Road	Kaweah No. 2 Flowline	726	0.138	8-12	Aggregate	Good	Aggregate road surrounding private homes and driveways. Road damage starts at intersection of Red Barn and Dinely.
Kaweah No. 2 Intake Road	Kaweah No. 3 Powerhouse Road	Kaweah No. 2 Intake	571	0.108	8-12	Paved	Good	Good condition throughout.
Kaweah No. 2 Powerhouse Road	Kaweah River Drive	Kaweah No. 2 Powerhouse	1,086	0.206	8-12	Paved	Fair to Good	Road goes from fair to good due to missing pavement, fair condition of reinforced gunite on downstream side of road. The road near powerhouse has new pavement in good condition.

Project Facility	Start	End	Overall Length		Width (feet)	Surface Treatment	Overall Condition	Comments
			Feet	Mile				
Kaweah No. 2 Flowline Center Access Road	Dinely Road	Dinely Road	4,640	0.879	8	Paved to Native	Poor	Overgrown with large erosion gullies.
Kaweah No. 2 Flowline Access Road - Canal 2 Brushout Grid	Canyon View Drive Spur	Kaweah No. 2 Flowline	77	0.015	8-12	Native	Good	Grassy and short road.
Kaweah No. 2 Flowline Access Road - Canal 4 East	Kaweah No. 2 Flowline East Access Road	Kaweah No. 2 Flowline	378	0.072	8-12	Native	Good	Grassy and slightly soft.
Kaweah No. 2 Flowline Access Road - Canal 4 West	Kaweah No. 2 Flowline East Access Road	Kaweah No. 2 Flowline	682	0.129	8-12	Native	Fair to Poor	Runnels midway up the road fairly deep. Soft ground at top. Good pullout at the end of the road. Road quality diminishes and more of a trail at the top.
Kaweah No. 2 Flowline Access Road - Canal 5	Kaweah No. 2 Flowline East Access Road	Kaweah No. 2 Flowline	1,204	0.228	8-12	Native	Good	Flat road in good condition.
Kaweah No. 2 Flowline Access Road - Canal 6 East	Kaweah No. 2 Flowline East Access Road	Kaweah No. 2 Flowline	354	0.067	8	Native	Good	Steep and grassy, but in good condition with an adequate turnaround at the end.
Kaweah No. 2 Flowline Access Road - Canal 6 West	Kaweah No. 2 Flowline East Access Road	Kaweah No. 2 Flowline	186	0.035	8-12	Native	Fair	Road has many runnels.
Kaweah No. 2 Flowline Access Road - Flume 11	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Flowline	158	0.030	12-16	Native	Good	Grassy road in good condition. Wide and drivable.
Kaweah No. 2 Flowline Access Road - Flume 8	Kaweah No. 2 Flowline Center Access Road	Kaweah No. 2 Flowline	259	0.049	8	Native	Poor	Heavily eroded and trail-like conditions.
Kaweah No. 2 Flowline West Access Road	Kaweah River Drive	Kaweah No. 2 Flowline Access Road - Flume 11	6,359	1.204	8-12	Paved to Aggregate	Good	Road starts out paved with some deterioration, then changes to a fairly good condition dirt road.
Kaweah No. 2 Forebay Road	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Forebay	1,568	0.297	8-12	Native	Fair	Many runnels in road with an uneven grade.
Kaweah No. 2 Penstock Road	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Penstock	413	0.078	8-12	Native	Fair	Overgrown vegetation near end of road.
Kaweah No. 3 Development								
Kaweah No. 3 Powerhouse Road	State Highway 198	Kaweah No. 3 Powerhouse	1,035	0.196	8-12	Paved	Good	Road in good condition with well-maintained bridges.
Kaweah No. 3 Forebay Road	Kaweah No. 3 Powerhouse Road	Kaweah No. 3 Forebay	9,227	1.748	8-12	Native	Good	Road in good condition with well-maintained culverts keeping switchbacks in good condition.
Project Trails								
Kaweah No. 1 Development								
Kaweah No. 1 Flowline Access Trail - Unnamed	Mineral King Road	Kaweah No. 1 Flowline	95	0.018	NA	Native	Fair	Short trail to access flowline.
~~Kaweah No. 1 Flowline Access Trail - Grand Canyon~~								
~~Kaweah No. 1 Solar Panel Access Trail~~								
Kaweah No. 2 Development								
Kaweah No. 2 Flowline Access Trail - Canal 11	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Flowline	77	0.015	NA	Native	Good	Grassy and vegetated.
Kaweah No. 2 Flowline Access Trail - Canal 13	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Flowline	53	0.010	NA	Native	Good	Grassy trail, steep to flowline.
Kaweah No. 2 Flowline Access Trail - Canal 15	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Flowline	116	0.022	NA	Native	Good	Short, grassy trail with one switchback, leads to bridge to cross flowline

Project Facility	Start	End	Overall Length		Width (feet)	Surface Treatment	Overall Condition	Comments
			Feet	Mile				
Kaweah No. 2 Flowline Access Trail - Canal 2	Canyon View Drive Spur	Kaweah No. 2 Flowline	44	0.008	NA	Native	Good	Trail was not surveyed due to locked gate without access with SCE keys. Grassy, short road to trail
Kaweah No. 2 Flowline Access Trail - Canal 4 East	Kaweah No. 2 Flowline Access Road - Canal 4 East	Kaweah No. 2 Flowline	42	0.008	NA	Native	Good	Short, grassy and in good condition.
Kaweah No. 2 Flowline Access Trail - Canal 4 West	Kaweah No. 2 Flowline Access Road - Canal 4 West	Kaweah No. 2 Flowline	40	0.008	NA	Native	Good	NA
Kaweah No. 2 Flowline Access Trail - Canal 5	Kaweah No. 2 Flowline Access Road - Canal 5	Kaweah No. 2 Flowline	42	0.008	NA	Native	Good	Short and grassy trail.
Kaweah No. 2 Flowline Access Trail - Canal 6	Kaweah No. 2 Flowline Access Road - Canal 6 East	Kaweah No. 2 Flowline	46	0.009	NA	Native	Good	Grassy, mellow slope to flowline.
Kaweah No. 2 Flowline Access Trail - Open Siphon	State Highway 198	Kaweah No. 2 Flowline	90	0.017	NA	Native	Good	Short and grassy trail starts at road beside a large granite rock (otherwise challenging to find).
Kaweah No. 2 Flowline Access Trail - Wildlife Crossing 2	Kaweah No. 2 Flowline Access Road - Open Siphon Grids	Kaweah No. 2 Flowline	41	0.008	NA	Native	Good	Grassy trail to wildlife crossing.
Kaweah No. 2 Flowline Access Trail - Water User 14	Kaweah No. 2 Flowline West Access Road	Kaweah No. 2 Flowline	37	0.007	NA	Native	Good	Short and rocky trail in good condition.
Kaweah No. 2 Flowline Access Trail - Water User 9	Kaweah No. 2 Flowline Center Access Road	Kaweah No. 2 Flowline	106	0.020	NA	Native	Fair	Loose and steep trail.
Kaweah No. 2 Powerhouse River Access Trail	Kaweah No. 2 Powerhouse Road	Kaweah No. 2 Powerhouse River Access	76	0.014	NA	Native	Good	Short trail to the river.
Kaweah No. 3 Development								
Kaweah No. 3 Flowline Access Trail	Kaweah No. 3 Forebay	Sequoia National Park Boundary	2975	0.563	NA	Native	Good	Trail in good condition.

Note: Red = Changes from LAND 1 – TSP

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Table LAND 1-4. Natural Resources Occurring Along Project Access Roads and Trails

Project Facility	Road/Trail ID	Stream Crossings (Source: USGS Hydrographic Features)	Riparian Areas (Source: TERR 1 - TSR)	Special-Status Plants (Source: TERR 1 - TSR)
Project Access Roads				
Kaweah No. 1 Development				
Kaweah No. 1 Flowline Access Road - Bear Canyon	K1FAR-BC			
Kaweah No. 1 Flowline Access Road - Grapevine	K1FAR-G			
Kaweah No. 1 Flowline Access Road - Lumberyard	K1FAR-L			
Kaweah No. 1 Flowline Access Road - Lumberyard (Spur)	K1FAR-L-S			
Kaweah No. 1 Flowline Access Road - Slick Rock	K1FAR-SR			
Kaweah No. 1 Forebay Road	K1FORE			
Kaweah No. 1 Intake Road	K1INT	1 Perennial	NR (Riparian Mixed Hardwood Alliance)	
Kaweah No. 1 Flowline Access Road - Lower Pine	K1FAR-LP			
Kaweah No. 1 Flowline Access Road - Lower Pine (Spur)	K1FAR-LP-S			
Kaweah No. 1 Flowline Access Road - Summit	K1FAR-S			
Kaweah No. 1 Flowline Access Road - Unnamed	K1FAR-UN			
Kaweah No. 1 Flowline Access Road - Upper Pine	K1FAR-UP			Munz's iris
Kaweah No. 2 Development				
Kaweah No. 2 Flowline East Access Road	K2FARE	2 Intermittent	NR (Riparian Mixed Hardwood Alliance)	
Kaweah No. 2 Flowline Access Road - Open Siphon Grids	K2FAR-OS			
Kaweah No. 2 Flowline Access Road - Red Barn	K2FAR-RB			
Kaweah No. 2 Intake Road	K2INT			
Kaweah No. 2 Powerhouse Road	K2POWR		NR (Riparian Mixed Hardwood Alliance)	
Kaweah No. 2 Flowline Center Access Road	K2FARC			

Project Facility	Road/Trail ID	Stream Crossings (Source: USGS Hydrographic Features)	Riparian Areas (Source: TERR 1 - TSR)	Special-Status Plants (Source: TERR 1 - TSR)
Kaweah No. 2 Flowline Access Road - Canal 2 Brushout Grid	K2FAR-C2BG			
Kaweah No. 2 Flowline Access Road - Canal 4 East	K2FAR-C4E			
Kaweah No. 2 Flowline Access Road - Canal 4 West	K2FAR-C4W			
Kaweah No. 2 Flowline Access Road - Canal 5	K2FAR-C5			
Kaweah No. 2 Flowline Access Road - Canal 6 East	K2FAR-C6E			
Kaweah No. 2 Flowline Access Road - Canal 6 West	K2FAR-C6W			
Kaweah No. 2 Flowline Access Road - Flume 11	K2FAR-F11			
Kaweah No. 2 Flowline Access Road - Flume 8	K2FAR-F8			
Kaweah No. 2 Flowline West Access Road	K2FARW		NR (Riparian Mixed Hardwood Alliance)	
Kaweah No. 2 Forebay Road	K2FORE			
Kaweah No. 2 Penstock Road	K2PEN			
Kaweah No. 3 Development				
Kaweah No. 3 Powerhouse Road	K3POWR	1 Perennial	NR (Riparian Mixed Hardwood Alliance)	
Kaweah No. 3 Forebay Road	K3FORE			

Project Facility	Road/Trail ID	Stream Crossings (Source: USGS Hydrographic Features)	Riparian Areas (Source: TERR 1 - TSR)	Special-Status Plants (Source: TERR 1 - TSR)
Project Trails				
Kaweah No. 1 Development				
Kaweah No. 1 Flowline Access Trail - Unnamed	K1FAT-UN			
~~Kaweah No. 1 Flowline Access Trail - Grand Canyon~~				
~~Kaweah No. 1 Solar Panel Access Trail~~				
Kaweah No. 2 Development				
Kaweah No. 2 Flowline Access Trail - Canal 11	K2FAT-C11			
Kaweah No. 2 Flowline Access Trail - Canal 13	K2FAT-C13			
Kaweah No. 2 Flowline Access Trail - Canal 15	K2FAT-C15			
Kaweah No. 2 Flowline Access Trail - Canal 2	K2FAT-C2			
Kaweah No. 2 Flowline Access Trail - Canal 4 East	K2FAT-C4			
Kaweah No. 2 Flowline Access Trail - Canal 4 West	K2FAT-C4W			
Kaweah No. 2 Flowline Access Trail - Canal 5	K2FAT-C5			
Kaweah No. 2 Flowline Access Trail - Canal 6	K2FAT-C6			
Kaweah No. 2 Flowline Access Trail - Open Siphon	K2FAT-OS			
Kaweah No. 2 Flowline Access Trail - Wildlife Crossing 2	K2FAT-WC2			
Kaweah No. 2 Flowline Access Trail - Water User 14	K2FAT-WU14			
Kaweah No. 2 Flowline Access Trail - Water User 9	K2FAT-WU9			
Kaweah No. 2 Powerhouse River Access Trail	K2PRAT		NR (Riparian Mixed Hardwood Alliance)	
Kaweah No. 3 Development				
Kaweah No. 3 Flowline Access Trail	K3FAT			

Note: Red = Changes from LAND 1 – TSP

Table LAND 1-5. SCE Use of Project Access Roads and Trails

Project Facility	Seasonality of Use	Level of Use (Low, Med, High)
Project Access Roads		
Kaweah No. 1 Development		
Kaweah No. 1 Flowline Access Road – Bear Canyon	Year round	L
Kaweah No. 1 Flowline Access Road – Grapevine	Year round	L
Kaweah No. 1 Flowline Access Road – Lumberyard	Year round	L
Kaweah No. 1 Flowline Access Road – Lumberyard (spur)	Year round	L
Kaweah No. 1 Flowline Access Road – Slick Rock	Year round	L
Kaweah No. 1 Forebay Road	Year round	M
Kaweah No. 1 Intake Road	Year round	M
Kaweah No. 1 Flowline Access Road – Lower Pine	Year round	L
Kaweah No. 1 Flowline Access Road – Lower Pine (spur)	Year round	L
Kaweah No. 1 Flowline Access Road – Summit	Not used in winter	L
Kaweah No. 1 Flowline Access Road – Unnamed	Year round	L
Kaweah No. 1 Flowline Access Road – Upper Pine	Not used in winter	L
Kaweah No. 2 Development		
Kaweah No. 2 Flowline East Access Road	Year round	L
Kaweah No. 2 Flowline Access Road – Open Siphon Grids	Year round	L
Kaweah No. 2 Flowline Access Road – Red Barn	Year round	L
Kaweah No. 2 Intake Road	Year round	M
Kaweah No. 2 Powerhouse Road	Year round	H
Kaweah No. 2 Flowline Center Access Road	Year round	L
Kaweah No. 2 Flowline Access Road – Canal 2 Brushout Grid	Year round	L
Kaweah No. 2 Flowline Access Road – Canal 4 East	Year round	L
Kaweah No. 2 Flowline Access Road – Canal 4 West	Year round	L
Kaweah No. 2 Flowline Access Road – Canal 5	Year round	L
Kaweah No. 2 Flowline Access Road – Canal 6 East	Year round	L
Kaweah No. 2 Flowline Access Road – Canal 6 West	Year round	L
Kaweah No. 2 Flowline Access Road – Flume 11	Year round	L
Kaweah No. 2 Flowline Access Road – Flume 8	Year round	L
Kaweah No. 2 Flowline West Access Road	Year round	L
Kaweah No. 2 Forebay Road	Year round	M
Kaweah No. 2 Penstock Road	Year round	M
Kaweah No. 3 Development		
Kaweah No. 3 Powerhouse Road	Year round	M
Kaweah No. 3 Forebay Road	Year round	M

Project Facility	Seasonality of Use	Level of Use (Low, Med, High)
Project Trails		
Kaweah No. 1 Development		
Kaweah No. 1 Flowline Access Trail – Unnamed	Year round	L
~~Kaweah No. 1 Flowline Access Trail – Grand Canyon~~		
~~Kaweah No. 1 Solar Panel Access Trail~~		
Kaweah No. 2 Development		
Kaweah No. 2 Flowline Access Trail – Canal 11	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 13	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 15	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 2	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 4 East	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 4 West	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 5	Year round	L
Kaweah No. 2 Flowline Access Trail – Canal 6	Year round	L
Kaweah No. 2 Flowline Access Trail – Open Siphon	Year round	L
Kaweah No. 2 Flowline Access Trail – Wildlife Crossing 2	Year round	H
Kaweah No. 2 Flowline Access Trail – Water User 14	Year round	L
Kaweah No. 2 Flowline Access Trail – Water User 9	Year round	L
Kaweah No. 2 Powerhouse River Access Trail	Year round	L
Kaweah No. 3 Development		
Kaweah No. 3 Flowline Access Trail	Year round	L

Note: Red = Changes from LAND 1 – TSP

Table LAND 1-6. Other Uses of Project Access Roads and Trails

Project Facility	Other Uses
Project Access Roads	
Kaweah No. 1 Development	
Kaweah No. 1 Flowline Access Road – Bear Canyon	–
Kaweah No. 1 Flowline Access Road – Grapevine	–
Kaweah No. 1 Flowline Access Road – Lumberyard	–
Kaweah No. 1 Flowline Access Road – Lumberyard (spur)	–
Kaweah No. 1 Flowline Access Road – Slick Rock	–
Kaweah No. 1 Forebay Road	Recreation
Kaweah No. 1 Intake Road	Recreation
Kaweah No. 1 Flowline Access Road – Lower Pine	Recreation
Kaweah No. 1 Flowline Access Road – Lower Pine (spur)	Recreation
Kaweah No. 1 Flowline Access Road – Summit	Recreation
Kaweah No. 1 Flowline Access Road – Unnamed	Recreation
Kaweah No. 1 Flowline Access Road – Upper Pine	Recreation
Kaweah No. 2 Development	
Kaweah No. 2 Flowline East Access Road	Recreation, Residential Access
Kaweah No. 2 Flowline Access Road – Open Siphon Grids	–
Kaweah No. 2 Flowline Access Road – Red Barn	Recreation, Residential Access
Kaweah No. 2 Intake Road	Recreation
Kaweah No. 2 Powerhouse Road	Recreation, Residential Access
Kaweah No. 2 Flowline Center Access Road	Recreation, Residential Access
Kaweah No. 2 Flowline Access Road – Canal 2 Brushout Grid	Recreation
Kaweah No. 2 Flowline Access Road – Canal 4 East	Recreation
Kaweah No. 2 Flowline Access Road – Canal 4 West	Recreation
Kaweah No. 2 Flowline Access Road – Canal 5	Recreation
Kaweah No. 2 Flowline Access Road – Canal 6 East	Recreation
Kaweah No. 2 Flowline Access Road – Canal 6 West	Recreation
Kaweah No. 2 Flowline Access Road – Flume 11	Recreation
Kaweah No. 2 Flowline Access Road – Flume 8	Recreation, Residential Access
Kaweah No. 2 Flowline West Access Road	Recreation, Residential Access
Kaweah No. 2 Forebay Road	Recreation
Kaweah No. 2 Penstock Road	Recreation
Kaweah No. 3 Development	
Kaweah No. 3 Powerhouse Road	Recreation
Kaweah No. 3 Forebay Road	Recreation, Residential Access

Project Facility	Other Uses
Project Trails	
Kaweah No. 1 Development	
Kaweah No. 1 Flowline Access Trail – Unnamed	Recreation
~~Kaweah No. 1 Flowline Access Trail – Grand Canyon~~	
~~Kaweah No. 1 Solar Panel Access Trail~~	
Kaweah No. 2 Development	
Kaweah No. 2 Flowline Access Trail – Canal 11	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 13	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 15	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 2	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 4 East	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 4 West	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 5	Recreation
Kaweah No. 2 Flowline Access Trail – Canal 6	Recreation
Kaweah No. 2 Flowline Access Trail – Open Siphon	–
Kaweah No. 2 Flowline Access Trail – Wildlife Crossing 2	Recreation
Kaweah No. 2 Flowline Access Trail – Water User 14	Recreation
Kaweah No. 2 Flowline Access Trail – Water User 9	Recreation
Kaweah No. 2 Powerhouse River Access Trail	Recreation
Kaweah No. 3 Development	
Kaweah No. 3 Flowline Access Trail	Recreation

Notes: Recreation = Hiking, walking, and/or biking
Red = Changes from LAND 1 – TSP

Table LAND 1-7. Project Access Road and Trail Maintenance Activities

Project Facility	Vegetation Management - Trimming by Hand	Vegetation Management - Herbicide Use[1]	Hazard Tree Removal	Road Maintenance	Trail Maintenance
Project Access Roads					
Kaweah No. 1 Development					
Kaweah No. 1 Flowline Access Road – Bear Canyon	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Grapevine	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Lumberyard	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Lumberyard (spur)	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Slick Rock	I	I	AN	AN	
Kaweah No. 1 Forebay Road	I	I	AN	AN	
Kaweah No. 1 Intake Road	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Lower Pine	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Lower Pine (spur)	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Summit	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Unnamed	I	I	AN	AN	
Kaweah No. 1 Flowline Access Road – Upper Pine	I	I	AN	AN	
Kaweah No. 2 Development					
Kaweah No. 2 Flowline East Access Road	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Open Siphon Grids	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Red Barn	I	I	AN	AN	
Kaweah No. 2 Intake Road	I	I	AN	AN	
Kaweah No. 2 Powerhouse Road	I	I	AN	AN	
Kaweah No. 2 Flowline Center Access Road	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Canal 2 Brushout Grid	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Canal 4 East	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Canal 4 West	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Canal 5	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Canal 6 East	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Canal 6 West	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Flume 11	I	I	AN	AN	
Kaweah No. 2 Flowline Access Road – Flume 8	I	I	AN	AN	
Kaweah No. 2 Flowline West Access Road	I	I	AN	AN	

Project Facility	Vegetation Management - Trimming by Hand	Vegetation Management - Herbicide Use[1]	Hazard Tree Removal	Road Maintenance	Trail Maintenance
Kaweah No. 2 Forebay Road	I	I	AN	AN	
Kaweah No. 2 Penstock Road	I	I	AN	AN	
Kaweah No. 3 Development					
Kaweah No. 3 Powerhouse Road	I	I	AN	AN	
Kaweah No. 3 Forebay Road	I	I	AN	AN	
Project Trails					
Kaweah No. 1 Development					
Kaweah No. 1 Flowline Access Trail –Unnamed	I		AN		AN
~~Kaweah No. 1 Flowline Access Trail – Grand Canyon~~					
~~Kaweah No. 1 Solar Panel Access Trail~~					
Kaweah No. 2 Development					
Kaweah No. 2 Flowline Access Trail – Canal 11	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 13	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 15	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 2	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 4 East	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 4 West	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 5	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Canal 6	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Open Siphon	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Wildlife Crossing 2	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Water User 14	I		AN		AN
Kaweah No. 2 Flowline Access Trail – Water User 9	I		AN		AN
Kaweah No. 2 Powerhouse River Access Trail	I		AN		AN
Kaweah No. 3 Development					
Kaweah No. 3 Flowline Access Trail	I		AN		AN

Notes: AN = Activity occurs on an as-needed basis
I = Activity occurs on an infrequent basis
Red = Changes from LAND 1 – TSP

[1] Herbicide use is allowed only up to the SNP boundary

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MAPS

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Facilities

- Powerhouse
- Diversion
- Flowline
- Spillway Channel or Pipe
- Penstock
- Flume Segment
- Ancillary Facility
- Gage
- Transmission Line
- Power Line
- Communication Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion
- River Mile / 10th Mile

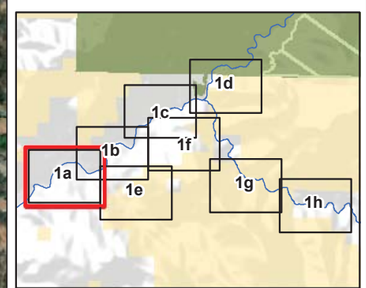
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

FERC Project No. 298

Map LAND 1-1a
Kaweah Project

Date: 11/27/2018

0 250 500 Feet

Projection: UTM Zone 11
Datum: NAD 83

C:\GIS\Cardno\30735240_SCE_EasternHydro\map\Kaweah\LandMaps\SCE_Eastern_KAWEAH_6K_LAND1_17i11i_01.mxd

Flume 9
Flume 9.5
Flume 10
Flume 9.75
Flume 11
Kaweah No.2 Flowline Access Road - Flume 11
Kaweah No. 2 Flowline Access Trail - Canal 11
Kaweah No. 2 Flowline
Kaweah No.2 Flowline Center Access Road
Flume 12
Kaweah No. 2 Flowline Access Trail - Canal 13
Flume 13
Flume 14
Kaweah No. 2 Flowline West Access Road
Dinely Road
WUD-FLUME 14
Flume 15
K2 Forebay
Kaweah No. 2 Forebay Road
Kaweah No. 2 Flowline Access Trail - WUD - Flume 14
Kaweah No. 2 Flowline Access Trail - Canal 15
K2 Powerhouse to K2 Forebay Fiber Communication Line
K2 Penstock
Kaweah No. 2 Powerhouse Road
Kaweah No. 2 Penstock Road
11208818
K2 Powerhouse to K2 Forebay Power Line
Kaweah No. 2 Powerhouse
K2 Switchyard
K2 Powerhouse Alternate Power Line
Kaweah No. 2 Powerhouse River Access Trail
Kaweah River Drive
Kaweah No. 2 Powerhouse Transmission Tap Line
KAWEAH RIVER
198
Kaweah No. 3 Powerhouse to Three Rivers Substation Transmission Line
K1 Switchyard
K1 Powerhouse Campus Power Lines
Kaweah No. 1 Powerhouse Transmission Tap Line
Kaweah No. 1 Powerhouse
11208800
K1 Maintenance Building
K1 Operators Office
K1 Workshop
K1 Office
K1 Powerhouse K1 Office Building Fiber Communication Line
K1 Penstock
K1 Powerhouse Campus Alternate Power Line
K1 Office Building to K1 Forebay Tank Fiber Communication Line
K1 Office Building to K1 Forebay Tank Power Line
6.1
6.2
6.3
6.4
6.5
6.6
6.7
6.8
6.9
7
7.1
5.1
5.2
5.3
5.4
5.5
5.6
5.7
5.8
5.9
4.9
5
6

Facilities

- Powerhouse
- Diversion
- Flowline
- Spillway Channel or Pipe
- Penstock
- Flume Segment
- Ancillary Facility
- Gage
- Transmission Line
- Power Line
- Communication Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion
- River Mile / 10th Mile

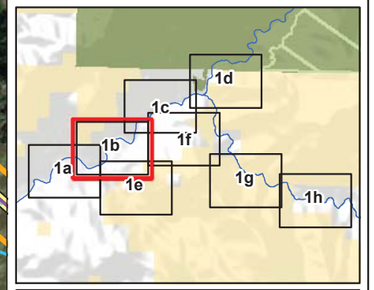
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



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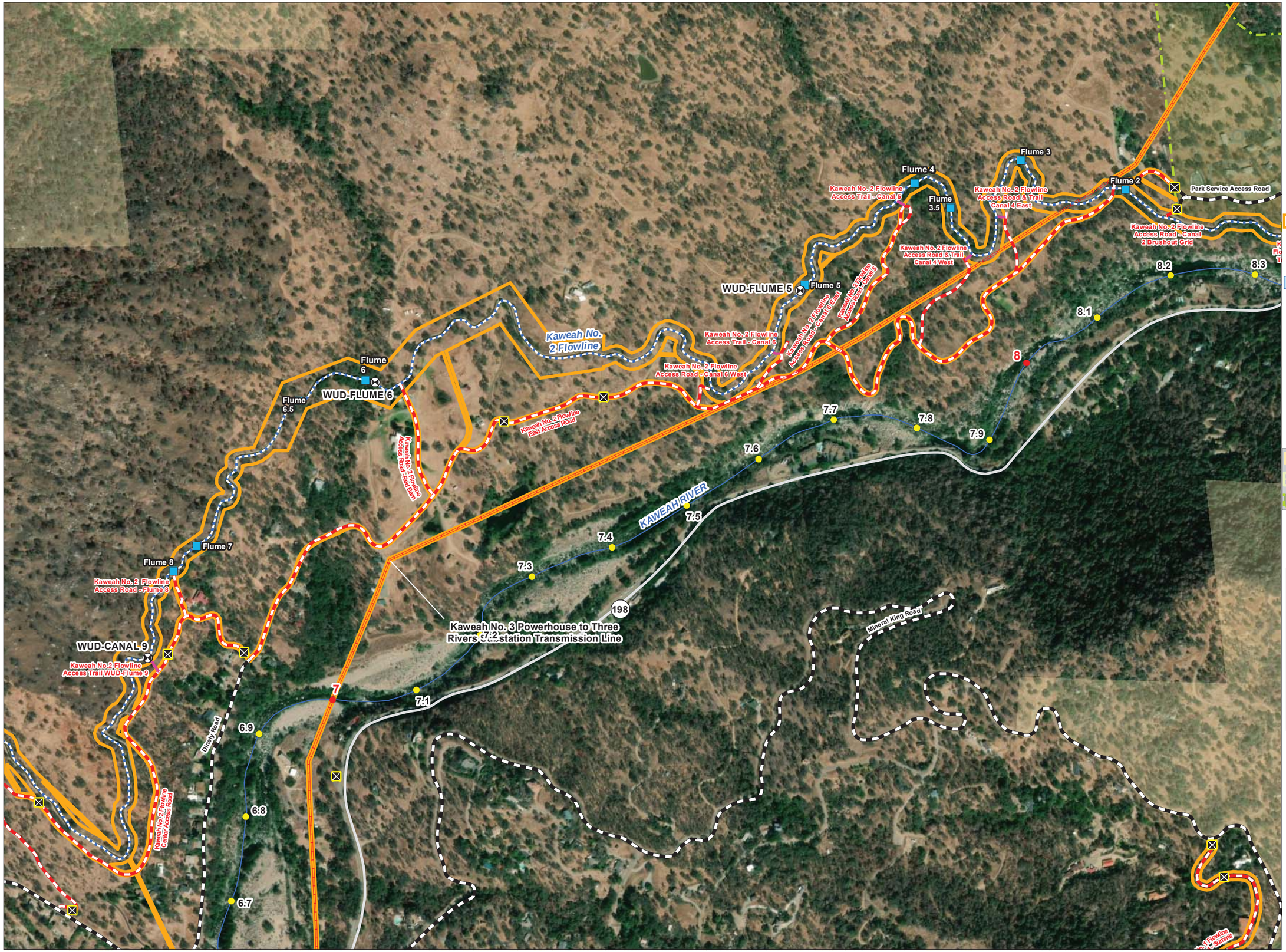
FERC Project No. 298

Map LAND 1-1b
Kaweah Project

0 250 500 Feet

Date: 11/27/2018

Projection: UTM Zone 11
Datum: NAD 83



Facilities

- Powerhouse
- Diversion
- Flowline
- Spillway Channel or Pipe
- Penstock
- Flume Segment
- Ancillary Facility
- Gage
- Transmission Line
- Power Line
- Communication Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion
- River Mile / 10th Mile

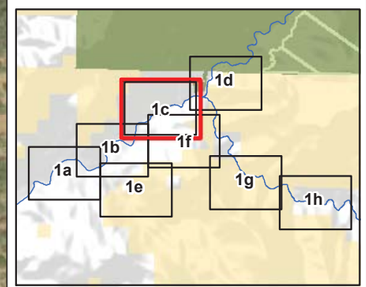
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

FERC Project No. 298

Map LAND 1-1c
Kaweah Project

0 250 500 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/27/2018

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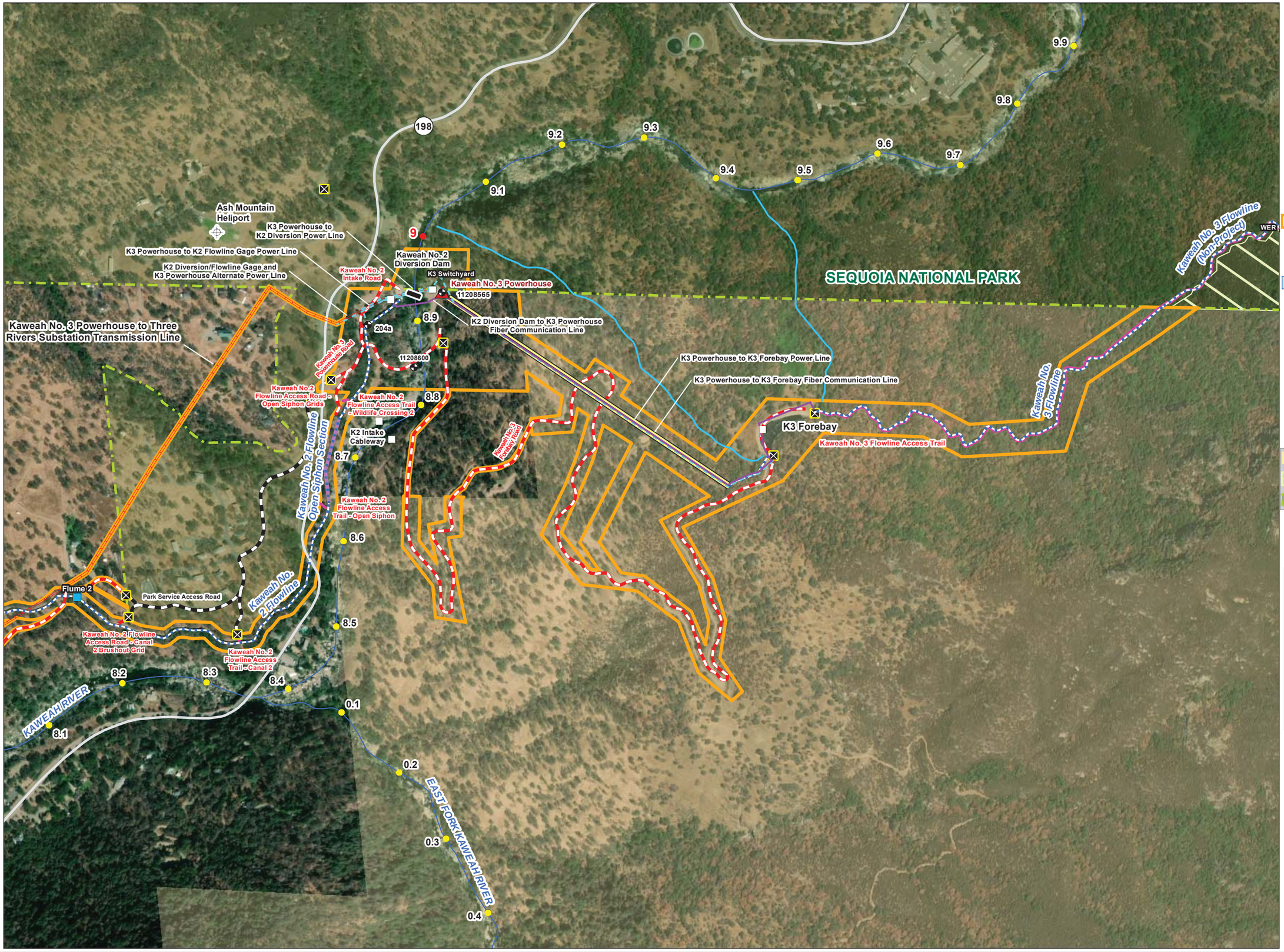


Facilities

- Powerhouse
- Diversion
- Flowline
- Spillway Channel or Pipe
- Penstock
- Flume Segment
- Ancillary Facility
- Gage
- Transmission Line
- Power Line
- Communication Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion
- River Mile / 10th Mile

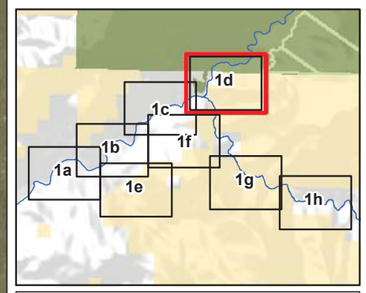
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
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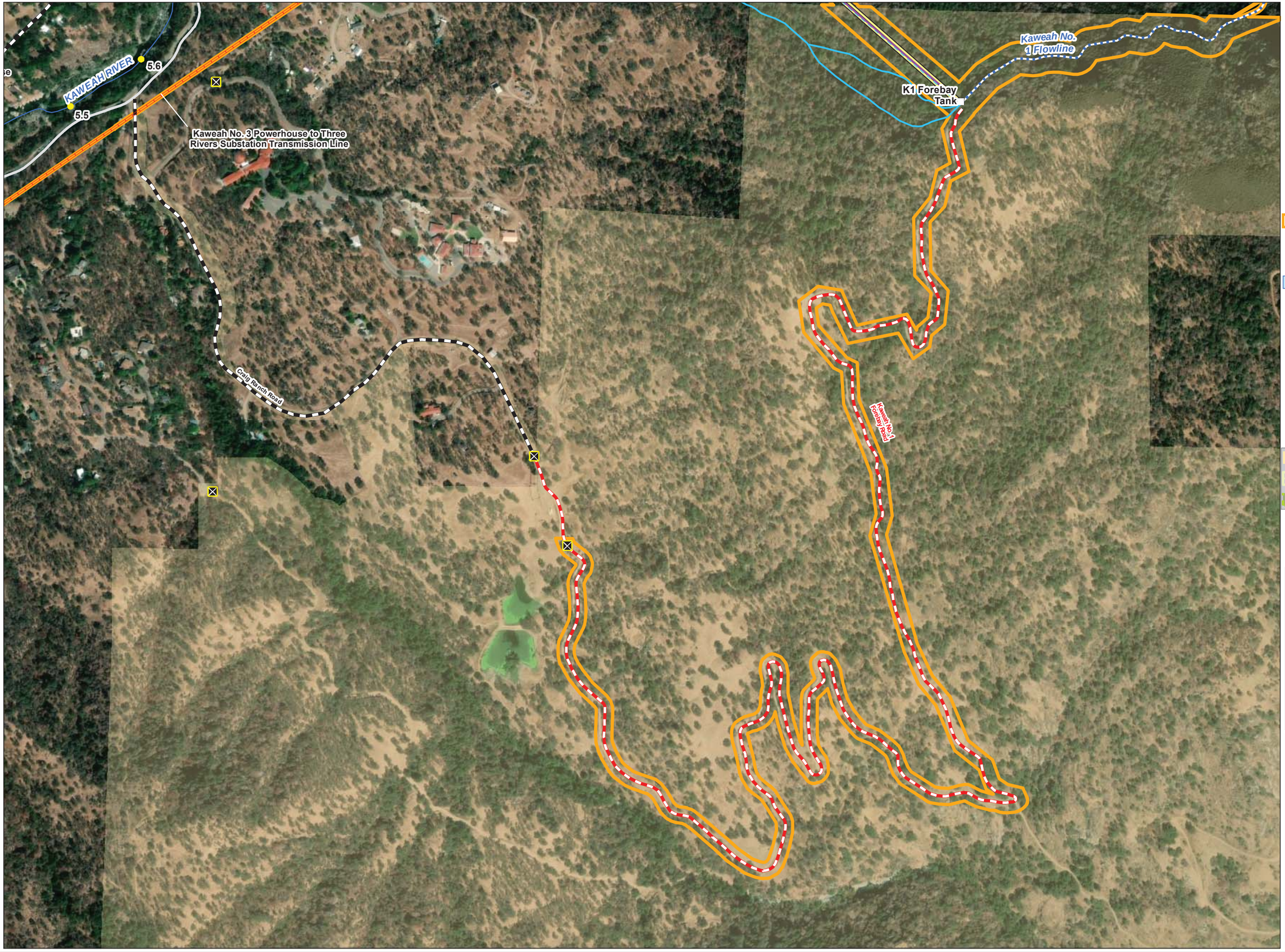
FERC Project No. 298

Map LAND 1-1d
Kaweah Project

0 250 500 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 12/3/2018



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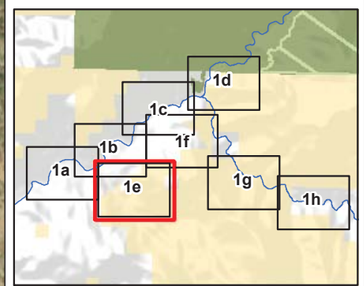
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map LAND 1-1e
Kaweah Project

Date: 11/27/2018

0 250 500 Feet

Projection: UTM Zone 11
Datum: NAD 83

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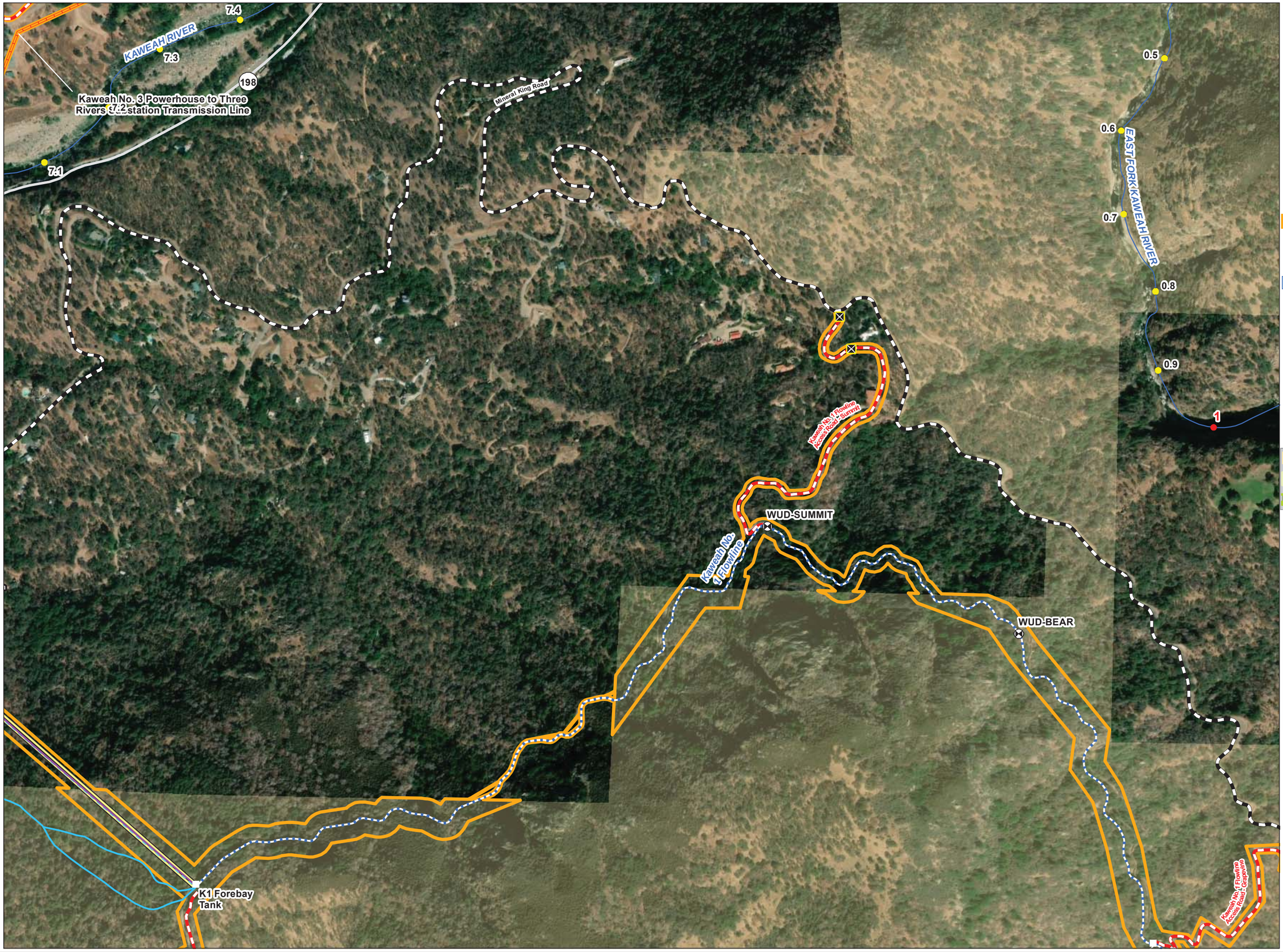

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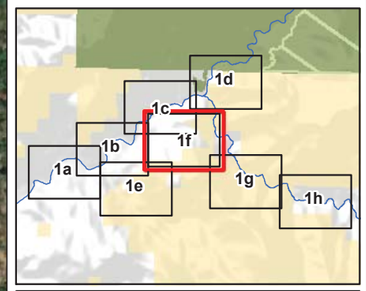
Kaweah Project entirely within Tulare County



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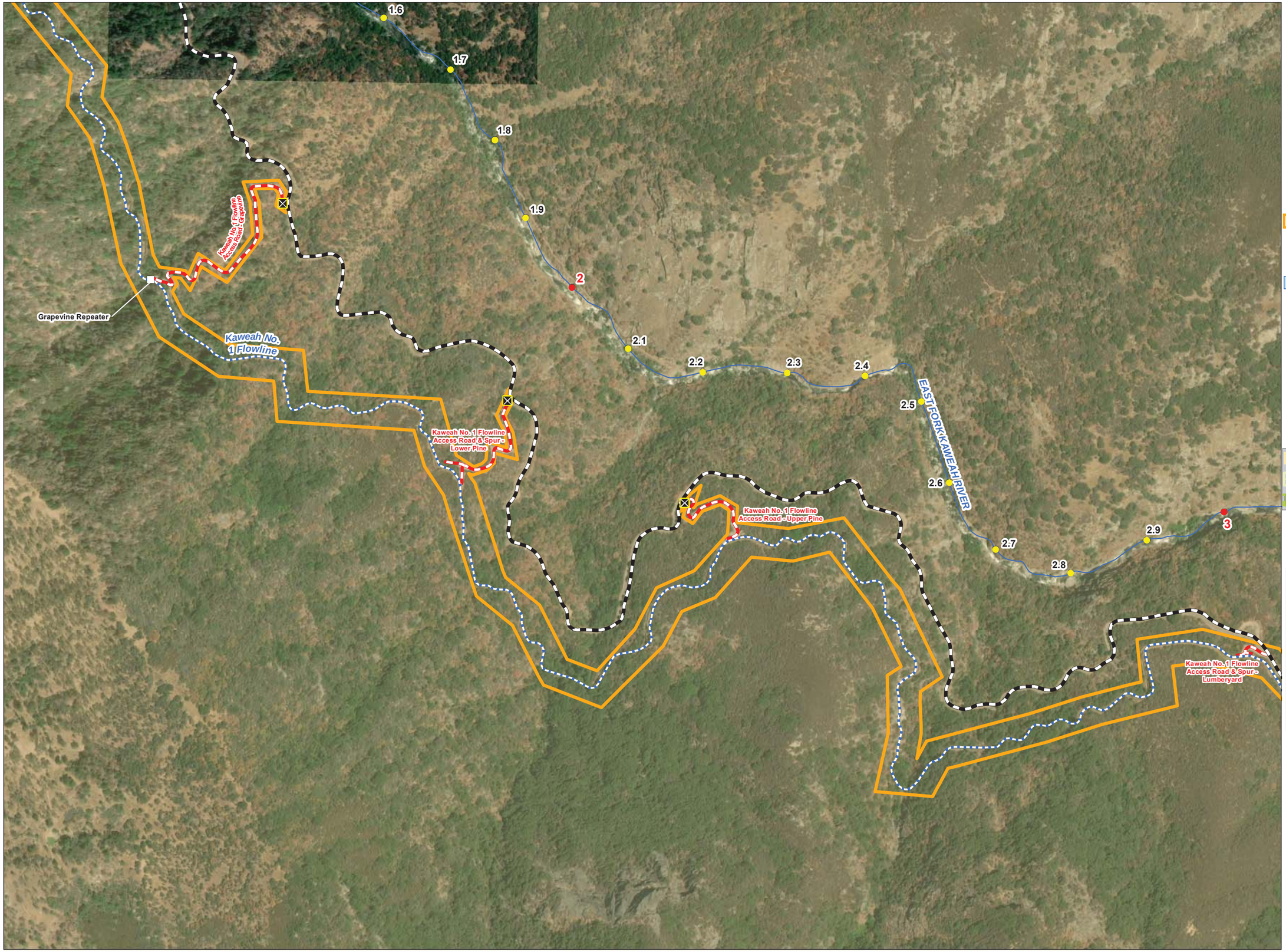
FERC Project No. 298

Map LAND 1-1f
Kaweah Project

0 250 500 Feet

Date: 11/27/2018

Projection: UTM Zone 11
Datum: NAD 83



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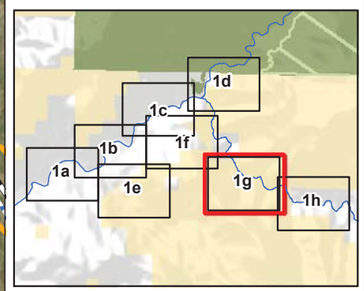

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FERC Project No. 298

Map LAND 1-1g
Kaweah Project

0 250 500 Feet

Date: 11/27/2018

Projection: UTM Zone 11
Datum: NAD 83

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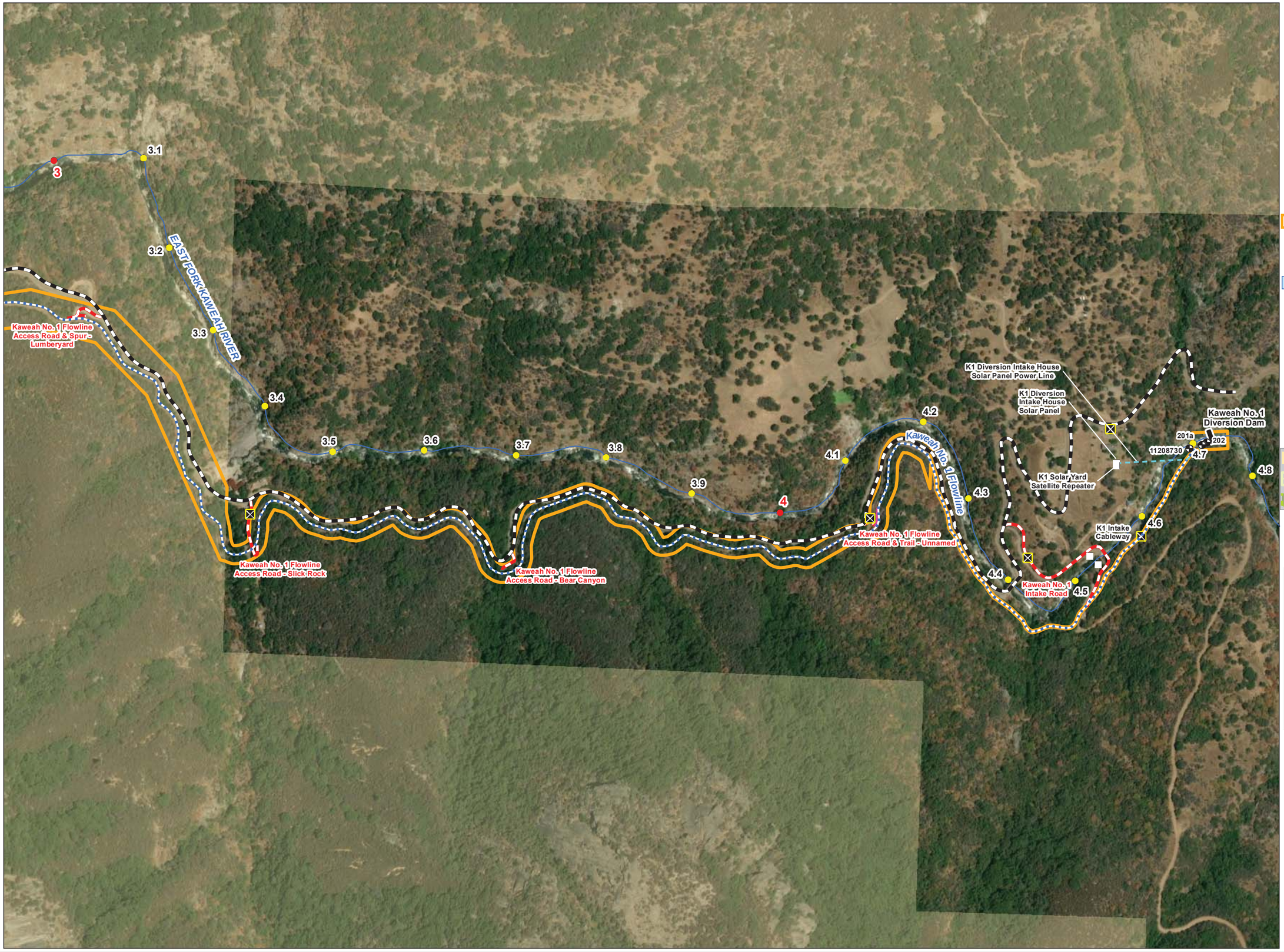

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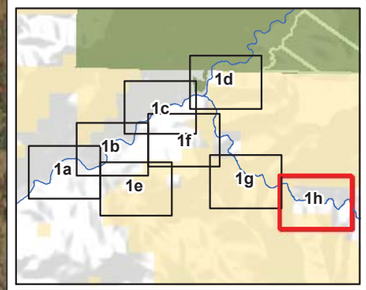

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

FERC Project No. 298

Map LAND 1-1h
Kaweah Project

0 250 500 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/27/2018

Appendix A

Road and Trail Survey Data Features Codes

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Appendix A Road and Trail Survey Data Feature Codes

00	Intersecting Road, Beginning Termini	Additional Notes	50	Ditch	Additional Notes
01	Public Road Access, Left (OPEN)	Record "00" at the beginning of each road/trail and also any applicable intersection feature codes from that centerline point.	51	Start Ditch Left	Record the beginning and end of all ditches using feature codes and add details to "Description of Features" datasheet.
02	Public Road Access, Right (OPEN)		52	Start Ditch Right	
03	Public Road Access Left (CLOSED)		53	End Ditch Left	
04	Public Road Access Right (CLOSED)		54	End Ditch Right	
05	Private Road Access, Left		55	Lead off Ditch Left	
06	Private Road Access, Right		56	Lead off Ditch Right	
07			57		
08			58	Begin PMP	
09			59	End PMP	
10	**Surface**	**Additional Notes**	**60**	**Nonspecified Sign**	**Additional Notes**
11	Primitive	Record road surface at point "00" and also use surface feature codes wherever the surface changes along the route.	61	Directional Left	Record each sign using applicable feature code and add details to "Description of Features" datasheet.
12	Native		62	Directional Right	
13	Aggregate		63	Regulatory Left	
14	Paved		64	Regulatory Right	
15	Spot Aggregate		65	Warning Left	
16	Pit Run		66	Warning Right	
17	Cinders		67	Route Marker Left	
18	Chip Seal		68	Route Market Right	
19			69	Poster	

20	Road Width (and change in road width)	Additional Notes	70	Road Closure Device	Additional Notes
21	Road < 8 ft	Record road width at point "00". Use road width feature codes if road width changes and that change lasts for at least 1/10th mile (~500 ft).	71	Steel Gate	Use feature code to record closure device and add details to "Description of Features" datasheet.
22	Road > 8 ft and < 12 ft		72	Powder River Gate	
23	Road > 12 ft and < 16 ft		73	Guardrail Barricade	
24	Road > 16 ft and < 20 ft		74	Log and Earth Barrier	
25	Road > 20 ft		75	Earth Berm	
26			76	Rock	
27			77		
28			78		
29			79		
30	**Terrain Deviation**	**Additional Notes**	**80**	**Miscellaneous**	**Additional Notes**
31	Flat (<15%)	Record terrain deviation at point "00" and also use terrain feature code if there is a consistent change in terrain deviation.	81	Bridge	Record the location of all miscellaneous features and add details to "Description of Features" datasheet.
32	Rolling (16%-30%)		82	Cattleguard	
33	Mountainous (>30%)		83	Turnout Left	
34			84	Turnout Right	
35			85	Railroad Crossing	
36			86	BLM Boundary Marker	
37			87	Jurisdiction Change	
38			88	County Line	
39			89	Milepost	

40	Drainage	Additional Notes	90	Miscellaneous	Additional Notes
41	18" CMP	Measure and record size of drainage features. Record details for each drainage feature in "Description of Features" datasheet.	91	Water Source	Code 95 can be used to add remarks about a feature or any general remarks
42	24" CMP		92	Borrow Source	
43	30" CMP		93	Disposal Site	
44	36" CMP		94	Landing	
45	>36" CMP		95	General Remarks: 95-1 road damage, 95-cl	
46	CMP arch		96	Geographic Landmark	
47	Multiplate		97	Buried Pipeline Crossing	
48	Rolling Dip		98	End Survey Road Continues	
49	Waterbar		99	End Termini	Record end of Project road/trail

Note: Modified from USDA-FS Road Log Data Collection Form

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Appendix B

Project Access Road and Trail Survey Data

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Appendix B Project Access Road and Trail Survey Data

Project Facility	Road ID	Asset Type	Land Ownership/ Jurisdiction	Functional Class (BLM only- collector, local, resource)	BLM route number/ spur (BLM only)	Road Start		Road End		Overall Length (ft./mile)	Meridian	Township	Range	Section	Aliquot Part	Road Width	Surface	Terrain (Flat <15%, Rolling 16-30%, Mountainous >30%)	**Condition	Survey Date	Comments - Overall Road/ Trail Condition	*Comments - Modifications since LAND 1-TSP
Project Access Roads																						
Kaweah No. 1 Development																						
Kaweah No. 1 Flowline Access Road - Bear Canyon	K1FAR-BC	Road	PVT	NA	NA	338454	4035337	338437	4035309	130/0.025	MDBLM	17S	29E	15	SENW	> 8ft and < 12 ft	Native	Rolling	Good	5/8/18	Recently graded and in good condition. Good turnaround spot and safe exit to Mineral King Road.	NC
Kaweah No. 1 Flowline Access Road - Grapevine	K1FAR-G	Road	BLM	local	1909	335909	4036583	335659	4036449	1591/0.301	MDBLM	17S	29E	38	NWSE	> 8ft and < 12 ft	Aggregate	Rolling	Poor	5/8/18	Steep and eroded. Old waterbars with overgrown erosion features. Two good turnarounds, one by the end of flowline.	NC
Kaweah No. 1 Flowline Access Road - Lumberyard	K1FAR-L	Road	BLM	local	1913	337752	4035741	337725	4035743	216/0.04	MDBLM	17S	29E	39	L5	> 8ft and < 12 ft	Native	Rolling	Good	5/8/18	Recently graded. Steep at bottom, but good turnaround exists	SM
Kaweah No. 1 Flowline Access Road - Lumberyard (Spur)	K1FAR-L-S	Road	BLM	local	1913	337711	4035745	337694	4035740	63/0.012	MDBLM	17S	29E	39	L5	> 8ft and < 12 ft	Native	Rolling	Good	5/8/18	Spur accesses flowline	Added a spur that accesses flowline.
Kaweah No. 1 Flowline Access Road - Slick Rock	K1FAR-SR	Road	PVT	NA	NA	338007	4035428	338018	4035351	378/0.072	MDBLM	17S	29E	15	SWNW	> 8ft and < 12 ft	Native	Rolling	Good	5/8/18	Overall good condition. Turnaround at end of road is steep with an alternative turnaround approximately 30 ft below.	NC
Kaweah No. 1 Forebay Road	K1FORE	Road	BLM	local	24/21	333055	4035890	333858	4036543	14,250/2.69	MDBLM	17S	29E	17 16 8 9	SENW,SWNE,NWSE,SWSE, SESE,NESE,SENE,NENE NWSW, NWNW SESE SWSW	> 8ft and < 12 ft	Native	Mountainous	Fair to Good	5/9/18	Fair due to broken pavement at start to good condition on dirt, recently graded with many of drainage features in good condition.	Road extended to include portion of Craig Ranch Road that has gated access.
Kaweah No. 1 Intake Road	K1INT	Road	PVT	NA	NA	339297	4035386	339437	4035246	1164/0.22	MDBLM	17S	29E	15	SENE	> 8ft and < 12 ft	Paved to Aggregate	Rolling	Good	5/8/18	Changes from paved to aggregate, overall good condition.	SM
Kaweah No. 1 Flowline Access Road - Lower Pine	K1FAR-LP	Primitive Road	BLM	local	1911	336329	4036223	336239	4036061	841/0.16	MDBLM	17S	29E	38	SESE	> 8ft and < 12 ft	Aggregate	Rolling	Good	5/8/18	Road condition is good, but steep. Multiple turnaround spots exist.	NC
Kaweah No. 1 Flowline Access Road - Lower Pine (Spur)	K1FAR-LP-S	Primitive Road	BLM	local	1911	336245	4036096	336207	4036104	129/.024	MDBLM	17S	29E	38	SESE	> 8ft and < 12 ft	Aggregate	Rolling	Good	5/8/18	NA	Added a spur that accesses flowline.

Project Facility	Road ID	Asset Type	Land Ownership/ Jurisdiction	Functional Class (BLM only- collector, local, resource)	BLM route number/ spur (BLM only)	Road Start		Road End		Overall Length (ft./mile)	Meridian	Township	Range	Section	Aliquot Part	Road Width	Surface	Terrain (Flat <15%, Rolling 16-30%, Mountainous >30%)	**Condition	Survey Date	Comments - Overall Road/ Trail Condition	*Comments - Modifications since LAND 1-TSP
Kaweah No. 1 Flowline Access Road - Summit	K1FAR-S	Primitive Road	PVT	NA	NA	335065	4037630	334923	4037234	2525/0.48	MDBLM	17S	29E	9	L3,L2,L4,L9	> 8ft and < 12 ft	Aggregate, Paved, Native	Rolling	Poor	5/9/18	Road is steep with no turnarounds. Road damage is extensive with many erosion gullies. Water tank system follows road, pipe is exposed in several locations and driver could damage.	SM
Kaweah No. 1 Flowline Access Road - Unnamed	K1FAR-UN	Primitive Road	PVT	NA	NA	339055	4035385	339074	4035385	113/0.021	MDBLM	17S	29E	15	SWNE	> 8ft and < 12 ft	Native	Rolling	Poor	5/8/18	Excessive vegetation, poor gate at bottom.	End of road changed, added a trail from the end of road that accesses flowline
Kaweah No. 1 Flowline Access Road - Upper Pine	K1FAR-UP	Primitive Road	BLM	local	1912	336651	4036019	336736	4035957	767/0.145	MDBLM	17S	29E	10 39	SWSW L4	> 8ft and < 12 ft	Aggregate	Rolling	Good	5/8/18	Recently graded, road condition is good, but steep. Good turnaround exists. Series of drainage features and waterbars in mostly good condition.	NC
Kaweah No. 2 Development																						
Kaweah No. 2 Flowline East Access Road	K2FARE	Road	PVT	NA	NA	333259	4037972	334995	4038858	8259/1.564	MDBLM	17S	29E	8 5 4	NWNE SWSE,SESE,L8 NWSW,NESW,NWSE,SWNE	> 8ft and < 12 ft	Paved to Aggregate	Rolling to Flat	Good	4/25/18	Well travelled road in good condition. Two private gates encountered, both open, first marked "no trespassing". Culverts generally well maintained.	Road extended to include additional portion on Dinely Rd. because SCE uses that portion to access K2FAR-F8 and F2FARC.
Kaweah No. 2 Flowline Access Road - Open Siphon Grids	K2FAR-OS	Road	PVT/NPS/PVT	NA	NA	335410	4039277	335389	4039196	287/0.054	MDBLM	17S	29E	37	NA	> 8ft and < 12 ft	Aggregate	Flat	Good	4/26/18	Loose aggregate exists. Well maintained ditches and culverts.	NC
Kaweah No. 2 Flowline Access Road - Red Barn	K2FAR-RB	Road	PVT	NA	NA	333602	4038282	333541	4038490	726/0.137	MDBLM	17S	29E	5	SWSW,L8	> 8ft and < 12 ft	Aggregate	Rolling	Good	4/25/18	Aggregate road surrounding private homes and driveways. Road damage starts at intersection of Red Barn and Dinely.	SM
Kaweah No. 2 Intake Road	K2INT	Road	PVT/NPS/PVT	NA	NA	335442	4039327	335510	4039434	571/0.108	MDBLM	17S 16S	29E 29E	37 33	NA SWSE	> 8ft and < 12 ft	Paved	Flat	Good	4/26/18	Good condition throughout.	SM
Kaweah No. 2 Powerhouse Road	K2POWR	Road	PVT	NA	NA	331684	4036623	331474	4036874	1086/0.206	MDBLM	17S	29E	7	SWSE,NWSE,NESW	> 8ft and < 12 ft	Paved	Rolling	Fair to Good	4/24/18	Road goes from fair to good due to missing pavement, fair condition of reinforced gunite on downstream side of road. The road near powerhouse has new pavement in good condition.	NC

Project Facility	Road ID	Asset Type	Land Ownership/ Jurisdiction	Functional Class (BLM only- collector, local, resource)	BLM route number/ spur (BLM only)	Road Start		Road End		Overall Length (ft./mile)	Meridian	Township	Range	Section	Aliquot Part	Road Width	Surface	Terrain (Flat <15%, Rolling 16-30%, Mountainous >30%)	**Condition	Survey Date	Comments - Overall Road/ Trail Condition	*Comments - Modifications since LAND 1-TSP
Kaweah No. 2 Flowline Center Access Road	K2FARC	Primitive Road	PVT	NA	NA	332900	4037507	333257	4037974	4640/0.879	MDBLM	17S	29E	8	SENW,NENW,SESW,SWSE	< 8ft	Paved to Native	Mountainous	Poor	4/25/18	Overgrown with large erosion gullies.	SM
Kaweah No. 2 Flowline Access Road - Canal 2 Brushout Grid	K2FAR-C2BG	Primitive Road	PVT	NA	NA	334999	4038817	334979	4038804	77/0.015	MDBLM	17S	29E	4	SWNE	> 8ft and < 12 ft	Native	Flat	Good	4/25/18	Grassy and short road.	SM
Kaweah No. 2 Flowline Access Road - Canal 4 East	K2FAR-C4E	Primitive Road	PVT	NA	NA	334697	4038701	334679	4038811	378/0.072	MDBLM	17S	29E	4	NWSE,SWNE	> 8ft and < 12 ft	Native	Rolling	Good	4/25/18	Grassy and slightly soft.	SM
Kaweah No. 2 Flowline Access Road - Canal 4 West	K2FAR-C4W	Primitive Road	PVT	NA	NA	334516	4038563	334599	4038726	682/0.129	MDBLM	17S	29E	4	NESW,SENW	> 8ft and < 12 ft	Native	Rolling	Fair to Poor	4/25/18	Runnels midway up the road fairly deep. Soft ground at top. Good pullout at the end of the road. Road quality diminishes and more of a trail at the top.	SM
Kaweah No. 2 Flowline Access Road - Canal 5	K2FAR-C5	Primitive Road	PVT	NA	NA	334343	4038569	334480	4038788	1204/0.228	MDBLM	17S	29E	4	NESW,SENW	> 8ft and < 12 ft	Native	Rolling	Good	4/25/18	Flat road in good condition.	SM
Kaweah No. 2 Flowline Access Road - Canal 6 East	K2FAR-C6E	Primitive Road	PVT	NA	NA	334211	4038483	334269	4038569	354/0.067	MDBLM	17S	29E	4	NWSW	< 8 ft	Native	Rolling	Good	4/25/18	Steep and grassy, but in good condition with anadequate turnaround at the end.	SM
Kaweah No. 2 Flowline Access Road - Canal 6 West	K2FAR-C6W	Primitive Road	PVT	NA	NA	334099	4038449	334123	4038479	186/0.035	MDBLM	17S	29E	4	NWSW	> 8ft and < 12 ft	Native	Rolling	Fair	4/25/18	Road has many runnels.	SM
Kaweah No. 2 Flowline Access Road - Flume 11	K2FAR-F11	Primitive Road	PVT	NA	NA	332419	4037665	332372	4037672	158/0.03	MDBLM	17S	29E	8	NWNW	> 12 ft and < 16 ft	Native	Mountainous	Good	4/24/18	Grassy road in good condition. Wide and drivable.	SM
Kaweah No. 2 Flowline Access Road - Flume 8	K2FAR-F8	Primitive Road	PVT	NA	NA	333138	4038055	333116	4038129	259/0.049	MDBLM	17S	29E	5	SWSE	< 8 ft	Native	Mountainous	Poor	4/25/18	Heavily eroded and trail-like conditions.	SM
Kaweah No. 2 Flowline West Access Road	K2FARW	Primitive Road	PVT	NA	NA	331699	4036619	332454	4037666	6359/1.2	MDBLM	17S	29E	7 8	SWSE,NWSE,NESE,SENE SWNW,NWNW	> 8ft and < 12 ft	Paved to Aggregate	Rolling	Good	4/24/18	Road starts out paved with some deterioration, then changes to a fairly good condition dirt road.	SM
Kaweah No. 2 Forebay Road	K2FORE	Primitive Road	PVT	NA	NA	331757	4036920	331742	4037025	1568/0.297	MDBLM	17S	29E	7	NWSE	> 8ft and < 12 ft	Native	Mountainous	Fair	5/9/18	Many runnels in road with an uneven grade.	SM
Kaweah No. 2 Penstock Road	K2PEN	Primitive Road	PVT	NA	NA	331676	4036833	331681	4036889	413/0.078	MDBLM	17S	29E	7	NWSE	> 8ft and < 12 ft	Native	Rolling	Fair	4/24/18	Overgrown vegetation near end of road.	NC
Kaweah No. 3 Development																						
Kaweah No. 3 Powerhouse Road	K3POWR	Road	PVT	NA	NA	335368	4039256	335585	4039361	1035/.196		17S	29E	37	NA	> 8ft and < 12 ft	Paved	Rolling	Good	4/24/18	Road in good condition with well-maintained bridges.	SM
Kaweah No. 3 Forebay Road	K3FORE	Primitive Road	PVT/BLM/PVT/BLM	local	30	335584	4039337	336273	4039208	9227/1.75		17S	29E	37	NA,L5,L6,L4,L2,SENE,L3	> 8ft and < 12 ft	Native	Mountainous	Good	4/26/18	Road in good condition with well-maintained culverts keeping switchbacks in good condition.	Road extended to the eastern end of the Forebay..

Project Facility	Road ID	Asset Type	Land Ownership/ Jurisdiction	Functional Class (BLM only- collector, local, resource)	BLM route number/ spur (BLM only)	Road Start		Road End		Overall Length (ft./mile)	Meridian	Township	Range	Section	Aliquot Part	Road Width	Surface	Terrain (Flat <15%, Rolling 16-30%, Mountainous >30%)	**Condition	Survey Date	Comments - Overall Road/ Trail Condition	*Comments - Modifications since LAND 1-TSP
Project Trails																						
Kaweah No. 1 Development																						
Kaweah No. 1 Flowline Access Trail - Unnamed	K1FAT-UN	Trail	PVT	NA	NA	339075	4035386	339079	4035413	95/0.021	MDBLM	17S	29E	15	SWNE	NA	Native	Rolling	Fair	5/8/18	Short trail to access flowline.	Trail added at end of road accessing flowline
~~Kaweah No. 1 Solar Panel Access Trail~~	~~K1SPAT~~	~~Trail~~	-	-	-	-	-	-	-	-	~~MDBLM~~	~~17S~~	~~29E~~	-	-	~~NA~~	~~Native~~	~~Flat~~	~~Fair~~	~~5/8/18~~	~~Tall grass, no visible trail, but easy walking.~~	~~Trail no longer used to access Project facilities~~
~~Kaweah No. 1 Flowline Access Trail – Grand Canyon~~	~~KAFAT-GC~~	~~Trail~~	-	-	-	-	-	-	-	-	~~MDBLM~~	~~17S~~	~~29E~~	-	-	~~NA~~	~~Native~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~Trail no longer used to access Project facilities~~
Kaweah No. 2 Development																						
Kaweah No. 2 Flowline Access Trail - Canal 11	K2FAT-C11	Trail	PVT	NA	NA	332462	4037663	332470	4037684	77/0.014	MDBLM	17S	29E	8	NWNW	NA	Native	Rolling	Good	4/24/18	Grassy and vegetated.	NC
Kaweah No. 2 Flowline Access Trail - Canal 13	K2FAT-C13	Trail	PVT	NA	NA	332274	4037499	332270	4037511	53/0.01	MDBLM	17S	29E	7	SENE	NA	Native	Rolling	Good	4/24/18	Grassy trail, steep to flowline.	NC
Kaweah No. 2 Flowline Access Trail - Canal 15	K2FAT-C15	Trail	PVT	NA	NA	4037511	4037026	331914	4037043	116/0.022	MDBLM	17S	29E	7	NESE	NA	Native	Rolling	Good	4/24/18	Short, grassy trail with one switchback, leads to bridge to cross flowline	SM
Kaweah No. 2 Flowline Access Trail - Canal 2	K2FAT-C2	Trail	PVT	NA	NA	335204	4038784	335208	4038771	44/0.008	MDBLM	17S	29E	4	SENE	NA	Native	Flat	Good	4/26/18	Trail was not surveyed due to locked gate without access with SCE keys. Grassy, short road to trail	SM
Kaweah No. 2 Flowline Access Trail - Canal 4 East	K2FAT-C4	Trail	PVT	NA	NA	334675	4038802	334662	4038803	42/0.008	MDBLM	17S	29E	4	SWNE	NA	Native	Rolling	Good	4/25/18	Short, grassy and in good condition.	SM
Kaweah No. 2 Flowline Access Trail - Canal 4West	K2FAT-C4W	Trail	PVT	NA	NA	334603	4038723	334613	4038731	40/0.007	MDBLM	17S	29E	4	SENW, SWNE	NA	Native	Rolling	Good	4/25/18	NA	Added trail that accesses flowline.
Kaweah No. 2 Flowline Access Trail - Canal 5	K2FAT-C5	Trail	PVT	NA	NA	334487	4038825	334476	4038831	42/0.008	MDBLM	17S	29E	4	SENW	NA	Native	Rolling	Good	4/25/18	Short and grassy trail.	NC
Kaweah No. 2 Flowline Access Trail - Canal 6	K2FAT-C6	Trail	PVT	NA	NA	334255	4038546	334242	4038548	46/0.009	MDBLM	17S	29E	4	NWSW	NA	Native	Rolling	Good	4/25/18	Grassy, mellow slope to flowline.	SM
Kaweah No. 2 Flowline Access Trail - Open Siphon	K2FAT-OS	Trail	NPS/PVT	NA	NA	335347	4039030	335372	4039022	90/0.017	MDBLM	17S	29E	4	SENE	NA	Native	Flat	Good	4/27/18	Short and grassy trail starts at road beside a large granite rock (otherwise challenging to find).	NC
Kaweah No. 2 Flowline Access Trail - Wildlife Crossing 2	K2FAT-WC2	Trail	PVT	NA	NA	335402	4039223	335414	4039223	41/0.008	MDBLM	17S	29E	37	NA	NA	Native	Flat	Good	4/26/18	Grassy trail to wildlife crossing.	SM
Kaweah No. 2 Flowline Access Trail - Water User 14	K2FAT-WU14	Trail	PVT	NA	NA	332000	4037081	331993	4037072	37/0.007	MDBLM	17S	29E	7	NESE	NA	Native	Mountainous	Good	4/24/18	Short and rocky trail in good condition.	SM

Project Facility	Road ID	Asset Type	Land Ownership/ Jurisdiction	Functional Class (BLM only- collector, local, resource)	BLM route number/ spur (BLM only)	Road Start		Road End		Overall Length (ft./mile)	Meridian	Township	Range	Section	Aliquot Part	Road Width	Surface	Terrain (Flat <15%, Rolling 16-30%, Mountainous >30%)	**Condition	Survey Date	Comments - Overall Road/ Trail Condition	*Comments - Modifications since LAND 1-TSP
Kaweah No. 2 Flowline Access Trail - Water User 9	K2FAT-WU9	Trail	PVT	NA	NA	333086	4037951	333066	4037973	106/0.02	MDBLM	17S	29E	8	NENW	NA	Native	Rolling	Fair	4/25/18	Loose and steep trail.	SM
Kaweah No. 2 Powerhouse River Access Trail	K2PRAT	Trail	PVT	NA	NA	331607	4036692	331613	4036671	76/0.0143	MDBLM	17S	29E	7	SWSE	NA	Native	Flat	Good	4/24/18	Short trail to the river.	NC
Kaweah No. 3 Development																						
Kaweah No. 3 Flowline Access Trail	K3FAT	Trail	BLM	NA	NA	336290	4039200	336940	4039399	2975/0.563	MDBLM	17S	29E	37 3	L3 L9,L8,L7	NA	Native	Mountainous	Good	4/26/2018 and 5/30/18	Trail in good condition.	SM

Notes: SM = slight modification in location of beginning or ending termini
NC = No Change

Roads were graded for annual maintenance the week of May 7, 2018.

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Appendix C

Project Access Road and Trail Survey Features

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Appendix C Project Access Road and Trail Survey Features

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Project Access Roads								
Kaweah No. 1 Development								
Kaweah No. 1 Flowline Access Road - Bear Canyon	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	Y	NA	338453.802	4035337.136
	84	Turnout Right	Safety	NA	N	Good	338440.490	4035314.155
	64	Regulatory Right	Safety	NA	NA	NA	338437.011	4035309.393
	99	End Termini	Road/Trail End	NA	Y	NA	338437.011	4035309.393
Kaweah No. 1 Flowline Access Road - Grapevine	0	Beginning Termini	Road/Trail Start	Aggregate, 8 - 12 ft, Mountainous	Y	NA	335908.773	4036583.492
	71	Steel Gate	Safety	NA	Y	Good	335902.409	4036587.368
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, runnel	Y	Poor	335901.757	4036589.406
	49	Waterbar	Drainage	NA	Y	Poor	335879.316	4036621.463
	84	Turnout Right	Safety	old and vegetated	N	Poor	335843.958	4036617.601
	49	Waterbar	Drainage	NA	N	NA	335852.242	4036586.619
	49	Waterbar	Drainage	eroded waterbar	N	Poor	335854.520	4036558.366
	49	Waterbar	Drainage	NA	NA	NA	335856.487	4036538.191
	49	Waterbar	Drainage	grassy and eroded	N	Poor	335847.378	4036510.426
	49	Waterbar	Drainage	NA	N	Fair	335826.652	4036488.910
	49	Waterbar	Drainage	NA	N	Fair	335815.065	4036473.018
	49	Waterbar	Drainage	NA	N	Fair	335806.507	4036464.653
	49	Waterbar	Drainage	NA	N	Fair	335778.049	4036468.555
	95	General Remark	Drainage	grassy and overgrown	N	Fair	335746.231	4036475.319
	49	Waterbar	Drainage	feeds into large drainage feature	N	Fair	335736.014	4036445.947
	49	Waterbar	Drainage	NA	N	Fair	335720.632	4036454.784
	49	Waterbar	Drainage	NA	N	Fair	335701.030	4036458.611
	84	Turnout Right	Safety	good size, at bend in road	N	Good	335682.163	4036456.863
	49	Waterbar	Drainage	NA	N	Good	335684.422	4036455.675
	49	Waterbar	Drainage	NA	N	Good	335696.150	4036437.736
	83	Turnout Left	Safety	large turnout	N	Good	335696.504	4036432.134
	83	Turnout Left	Safety	NA	N	Good	335676.138	4036439.286
	65	Warning Left	Safety	SCE warning sign	N	Good	335659.362	4036448.817
	99	End Termini	Road/Trail End	NA	Y	NA	335659.362	4036448.817
Kaweah No. 1 Flowline Access Road - Lumberyard	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	Y	NA	337751.925	4035740.697
	84	Turnout Right	Safety	Start of turnout	NA	NA	337720.427	4035759.314
	84	Turnout Right	Safety	End of turnout	NA	NA	337710.010	4035752.814
	66	Warning Right	Safety	NA	NA	NA	337725.393	4035743.342
	99	End Termini	Road/Trail End	NA	Y	NA	337725.393	4035743.342

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 1 Flowline Access Road - Lumberyard (Spur)	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	NA	NA	337711.068	4035745.499
	99	End Termini	Road/Trail End		NA	NA	337693.624	4035739.778
Kaweah No. 1 Flowline Access Road - Slick Rock	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	Y	NA	338006.941	4035428.327
	95	General Remark	Road/Trail Feature	Blind spot - Non-project road (Mineral King) and Project road intersection	N	NA	338006.782	4035429.161
	71	Steel Gate	Safety	SCE locked gate	N	Good	338006.965	4035406.985
	84	Turnout Right	Safety	NA	N	Good	338007.085	4035355.654
	83	Turnout Left	Safety	difficult angle for turnaround	N	Good	338016.334	4035335.120
	66	Warning Right	Safety	NA	N	Good	338018.344	4035342.558
	66	Warning Right	Safety	NA	NA	NA	338018.283	4035351.087
	99	End Termini	Road/Trail End	NA	Y	NA	338018.283	4035351.087
Kaweah No. 1 Forebay Road	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Flat	Y	NA	333054.937	4035890.106
	95	General Remark	Safety	Bike trail crossing, no sign	Y	NA	333452.352	4035382.468
	42	24" CMP	Drainage	small drainage	Y	Good	333493.181	4035411.836
	41	18" CMP	Drainage	small ditch to culvert	Y	Good	333501.206	4035459.129
	50	Ditch	Drainage	Small, <6" ditch on right and left	N	NA	333510.597	4035498.351
	42	24" CMP	Drainage	poison oak in and around culvert	Y	Good	333525.472	4035407.858
	95	General Remark	Safety	Bike trail crossing, steep jump into road, no sign	Y	NA	333595.199	4035300.171
	95	General Remark	Safety	Bike trail crossing, left side, no sign	Y	NA	333583.915	4035454.814
	42	24" CMP	Drainage	heavily vegetated	Y	Fair	333599.488	4035471.378
	95	General Remark	Safety	Bike trail crossing, no sign	Y	NA	333611.740	4035488.284
	42	24" CMP	Drainage	NA	Y	Good	333630.335	4035431.852
	95	General Remark	Safety	Bike trail crossing above, no sign	Y	NA	333630.335	4035431.852
	41	18" CMP	Drainage	NA	NA	NA	333705.051	4035358.424
	95	General Remark	Safety	bike crossing unmarked	NA	NA	333710.849	4035356.900
	42	24" CMP	Drainage	NA	Y	Good	333732.279	4035334.902
	95	General Remark	Safety	Bike trail crossing, no sign	Y	Good	333737.913	4035324.635
	43	30" CMP	Drainage	NA	Y	Good	333782.633	4035267.971
	95	General Remark	Safety	old fencing on side of road	NA	NA	333857.553	4035258.395
	82	Cattleguard	Safety	covered with vegetation, not effective	Y	Poor	333857.553	4035258.395
	84	Turnout Right	Safety	grassy, but usable	N	Fair	333894.188	4035241.639
	44	36" CMP	Drainage	standing water in pool above	Y	Poor	333959.439	4035246.080
	95	General Remark	Road/Trail Feature	Mountainous	NA	NA	333959.950	4035249.820
	41	18" CMP	Drainage	NA	Y	Good	333846.653	4035361.278
	41	18" CMP	Drainage	a little flattened	Y	Fair	333832.436	4035404.574
	41	18" CMP	Drainage	NA	Y	Good	333814.144	4035444.571
	83	Turnout Left	Safety	a little soft, but useable	N	Good	333786.051	4035467.569

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	83	Turnout Left	Safety	NA	NA	NA	333781.623	4035479.901
	41	18" CMP	Drainage	NA	Y	Good	333773.944	4035510.337
	41	18" CMP	Drainage	small riparian area above	Y	Good	333758.836	4035550.848
	41	18" CMP	Drainage	NA	Y	Good	333729.003	4035624.374
	41	18" CMP	Drainage	small riparian area above	Y	Good	333719.516	4035671.611
	41	18" CMP	Drainage	very flattened, not usable	Y	Poor	333708.912	4035785.146
	41	18" CMP	Drainage	NA	Y	Good	333704.776	4035812.774
	42	24" CMP	Drainage	NA	Y	Good	333706.271	4035846.376
	41	18" CMP	Drainage	NA	Y	Good	333692.126	4035900.079
	41	18" CMP	Drainage	partially filled with sediment	Y	Fair	333669.346	4035959.955
	41	18" CMP	Drainage	partially filled with sediment	Y	Fair	333652.536	4036021.900
	43	30" CMP	Drainage	small riparian area above	Y	Good	333648.079	4036057.818
	41	18" CMP	Drainage	NA	Y	Good	333626.562	4036070.929
	49	Waterbar	Drainage	NA	N	Good	333589.832	4036112.259
	83	Turnout Left	Safety	NA	N	Good	333569.020	4036178.332
	83	Turnout Left	Safety	NA	N	Good	333572.596	4036186.520
	48	Rolling Dip	Drainage	NA	NA	NA	333633.998	4036169.463
	48	Rolling Dip	Drainage	NA	N	Good	333638.867	4036153.748
	48	Rolling Dip	Drainage	NA	N	Good	333653.590	4036126.815
	41	18" CMP	Drainage	NA	NA	NA	333691.020	4036132.160
	48	Rolling Dip	Drainage	NA	Y	Good	333697.841	4036132.287
	48	Rolling Dip	Drainage	NA	N	Good	333717.516	4036136.866
	48	Rolling Dip	Drainage	NA	N	Good	333731.039	4036139.259
	41	18" CMP	Drainage	NA	NA	NA	333737.229	4036146.634
	41	18" CMP	Drainage	NA	Y	Good	333753.339	4036146.192
	48	Rolling Dip	Drainage	NA	NA	NA	333762.939	4036113.829
	49	Waterbar	Drainage	NA	NA	NA	333767.476	4036099.036
	48	Rolling Dip	Drainage	NA	Y	Good	333767.476	4036099.036
	49	Waterbar	Drainage	NA	Y	Good	333786.531	4036100.901
	49	Waterbar	Drainage	NA	NA	NA	333795.013	4036134.954
	49	Waterbar	Drainage	NA	NA	NA	333812.549	4036151.441
	49	Waterbar	Drainage	NA	Y	Good	333812.549	4036151.441
	49	Waterbar	Drainage	NA	Y	Good	333814.822	4036183.915
	83	Turnout Left	Safety	NA	NA	NA	333826.016	4036419.291
	41	18" CMP	Drainage	NA	NA	NA	333855.714	4036430.472
	83	Turnout Left	Safety	NA	N	Good	333855.714	4036430.472

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	41	18" CMP	Drainage	riparian area	Y	Good	333854.486	4036436.716
	84	Turnout Right	Safety	NA	NA	NA	333847.504	4036515.082
	84	Turnout Right	Safety	good parking and turnaround	Y	Good	333846.654	4036520.648
	65	Warning Left	Safety	NA	NA	NA	333858.459	4036542.597
	82	Cattleguard	Safety	filled with veg	Y	Poor	333054.937	4035890.106
	71	Steel Gate	Safety	with barbed wire	Y	Good	333054.937	4035890.106
	41	18" CMP	Drainage	heavily vegetated	Y	NA	333108.499	4035772.824
	72	Powder River Gate	Safety	NA	NA	NA	333117.549	4035720.008
	52	Start Ditch Right	Drainage	NA	Y	Good	333117.549	4035720.008
	95	Road/Trail Feature	Road/Trail Feature	Rolling	NA	NA	333116.788	4035721.578
	71	Steel Gate	Safety	unlocked BLM gate	Y	Good	333116.788	4035721.578
	67	Route Marker Left	Safety	BLM sign	Y	Good	333121.968	4035716.964
	43	30" CMP	Drainage	slightly vegetated, but water can get through	Y	Fair	333149.684	4035691.435
	43	30" CMP	Drainage	fed by drainage with small creek	Y	Good	333139.079	4035596.661
	43	30" CMP	Drainage	drainage channel, medium	Y	Good	333188.509	4035407.741
	95	General Remark	Safety	Old fence, formerly crossed road	N	NA	333187.365	4035347.931
	95	General Remark	Drainage	Old pipes likely drainage side of road	NA	NA	333274.069	4035267.809
	44	36" CMP	Drainage	NA	NA	NA	333372.978	4035191.603
	44	36" CMP	Drainage	filled with vegetation, flattened on top, draining small drainage	Y	Fair	333407.761	4035156.081
	52	Start Ditch Right	Drainage	small 1' deep, same on left side of road, but no point	Y	Good	333492.432	4035110.850
	54	End Ditch Right	Drainage	small 1' deep, same on left side of road, but no point	Y	Good	333505.442	4035118.774
	42	24" CMP	Drainage	flattened on top; draining small drainage	Y	Fair	333524.674	4035205.296
	99	End Termini	Road/Trail End	NA	Y	NA	333858.459	4036542.597
Kaweah No. 1 Intake Road	0	Beginning Termini	Road/Trail Start	Paved, 8 - 12 ft, Rolling	Y	NA	339297.093	4035385.914
	64	Regulatory Right	Safety	private property road, unauthorized	Y	Good	339303.120	4035386.595
	71	Steel Gate	Safety	locked SCE gate	Y	Good	339334.168	4035330.983
	41	18" CMP	Drainage	NA	N	Good	339348.013	4035314.705
	66	Warning Right	Safety	bullet damage on sign	Y	Fair	339436.102	4035337.750
	65	Warning Left	Safety	one lane bridge, bullet damage sign	Y	Fair	339436.102	4035337.750
	65	Warning Left	Safety	NA	NA	NA	339462.595	4035342.860
	81	Bridge	Safety	Start of bridge	Y	Good	339462.595	4035342.860
	13	Aggregate	Road/Trail Feature	Surface Change	NA	NA	339472.980	4035328.644
	65	Warning Left	Safety	NA	NA	NA	339472.980	4035328.644
	66	Warning Right	Safety	NA	NA	NA	339472.980	4035328.644
	81	Bridge	Safety	End of bridge	NA	NA	339472.980	4035328.644
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, pothole near stone wall	Y	Poor	339476.466	4035328.934

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	44	36" CMP	Drainage	NA	N	Good	339458.676	4035287.156
	65	Warning Left	Safety	two warning signs	Y	Good	339448.939	4035265.806
	65	Warning Left	Safety	NA	Y	Good	339436.521	4035252.857
	66	Warning Right	Safety	NA	Y	Good	339436.521	4035252.857
	81	Bridge	Safety	Start of bridge	Y	Good	339436.521	4035252.857
	65	Warning Left	Safety	NA	NA	NA	339436.785	4035245.868
	66	Warning Right	Safety	NA	NA	NA	339436.785	4035245.868
	81	Bridge	Safety	NA	NA	NA	339436.785	4035245.868
	99	End Termini	Road/Trail End	End of bridge	Y	NA	339436.785	4035245.868
Kaweah No. 1 Flowline Access Road - Lower Pine	0	Beginning Termini	Road/Trail Start	Aggregate, 8 - 12 ft, Rolling	Y	NA	336329.466	4036223.355
	95	General Remark	Road/Trail Feature	Blind spot - Non-project road (Mineral King) and Project road intersection	N	NA	336330.381	4036223.275
	95	General Remark	Road/Trail Feature	Road damage	Y	Poor	336329.762	4036126.453
	83	Turnout Left	Safety	turnaround before switchback	N	NA	336330.783	4036124.769
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage start	NA	NA	336328.977	4036122.899
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage end	NA	NA	336314.527	4036125.912
	84	Turnout Right	Safety	NA	NA	NA	336299.764	4036127.846
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage	N	Poor	336299.597	4036122.620
	41	18" CMP	Drainage	NA	N	Good	336329.719	4036218.450
	41	18" CMP	Drainage	NA	Y	NA	336295.798	4036105.430
	52	Start Ditch Right	Drainage	NA	Y	NA	336295.798	4036105.430
	95-1	Road/Trail Damage	Road/Trail Feature	Road Damage end	NA	NA	336292.333	4036097.717
	53	End Ditch Left	Drainage	NA	N	NA	336275.225	4036087.249
	95	General Remark	Road/Trail Feature	Start of fork in road	NA	NA	336242.369	4036095.539
	49	Waterbar	Drainage	NA	N	NA	336244.114	4036093.775
	72	Powder River Gate	Safety	NA	N	Good	336325.558	4036217.231
	66	Warning Right	Safety	warning sign	Y	Good	336239.113	4036060.668
	95	General Remark	Road/Trail Feature	No flowline access	N	NA	336239.113	4036060.668
	84	Turnout Right	Safety	good turnaround before switchback	N	Good	336315.012	4036193.093
	41	18" CMP	Drainage	NA	Y	Good	336325.605	4036161.670
	52	Start Ditch Right	Drainage	NA	Y	Good	336325.605	4036161.670
	99	End Termini	Road/Trail End	NA	Y	NA	336239.113	4036060.668
Kaweah No. 1 Flowline Access Road - Lower Pine (Spur)	0	Beginning Termini	Road/Trail Start		NA		336245.242	4036096.468
	99	End Termini	Road/Trail End	Road forks right to base of elevated flowline	NA	Good	336207.112	4036103.755

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 1 Flowline Access Road - Summit	0	Beginning Termini	Road/Trail Start	Start, Aggregate, Rolling	Y	NA	335065.421	4037630.490
	95	General Remark	Road/Trail Feature	Blind spot - Non-project road (Mineral King) and Project road intersection	NA	NA	335064.741	4037630.344
	71	Steel Gate	Safety	Gate	N	Good	335065.956	4037623.980
	41	18" CMP	Drainage	covered by veg, fed by small ditch from left	Y	Fair	335065.956	4037623.980
	70	Road Closure Device	Safety	SCE Gate - Chain	Y	Good	335086.762	4037563.993
	95	General Remark	Road/Trail Feature	Two private water tanks next to road	NA	NA	335141.076	4037557.395
	95	General Remark	Road/Trail Feature	Private water tank adjacent to road	NA	NA	335150.140	4037506.533
	49	Waterbar	Drainage	flagged pipe on waterbar	Y	Fair	335084.278	4037420.483
	49	Waterbar	Drainage	waterbar to pvc pipe	N	Good	335076.593	4037414.262
	70	Road Closure Device	Safety	Chain gate	N	Good	335088.060	4037563.342
	95	General Remark	Safety	Watertank with sign "For Fire Trucks"	N	Good	335061.176	4037397.147
	49	Waterbar	Drainage	soft	N	Good	335054.672	4037392.090
	49	Waterbar	Drainage	soft	N	Good	335046.692	4037379.069
	95	General Remark	Road/Trail Feature	Underground pipe (unknown purpose)	Y	Poor	335037.625	4037355.196
	49	Waterbar	Drainage	Drainage feature	N	Fair	335035.384	4037350.313
	49	Waterbar	Drainage	old, covered	N	Poor	335030.078	4037335.655
	49	Waterbar	Drainage	old, covered	N	Poor	335025.846	4037326.074
	49	Waterbar	Drainage	old, covered	N	Poor	335020.298	4037313.243
	49	Waterbar	Drainage	old, covered	N	Poor	335014.289	4037300.411
	49	Waterbar	Drainage	water pipe exposed on left	N	Poor	335003.939	4037293.524
	41	18" CMP	Drainage	NA	N	Good	334926.136	4037309.470
	41	18" CMP	Drainage	NA	N	Good	334891.309	4037288.685
	14	Paved	Road/Trail Feature	Surface Change	NA	NA	335047.888	4037548.106
	41	18" CMP	Drainage	NA	N	Good	334879.654	4037252.967
	54	End Ditch Right	Drainage	extensive, ditch not maintained, extensive road damage pothole deep	Y	Poor	334884.404	4037238.406
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, deep potholes	N	Poor	334884.404	4037238.406
	41	18" CMP	Drainage	exposed on road	N	Poor	334892.471	4037221.336
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, runnels	N	Poor	334892.471	4037221.336
	95	General Remark	Safety	No turnaround, steep road	N	Poor	334892.471	4037221.336
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage	NA	NA	334895.019	4037215.489
	12	Native	Road/Trail Feature	Surface Change	NA	NA	335082.141	4037562.873
	99	End Termini	Road/Trail End	NA	Y	NA	334923.121	4037233.645

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 1 Flowline Access Road - Unnamed	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	Y	NA	339054.744	4035385.351
	95	General Remark	Road/Trail Feature	Blind spot - Non-project road (Mineral King) and Project road intersection	N	NA	339051.941	4035385.821
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, pothole	N	Poor	339063.123	4035392.812
	71	Steel Gate	Safety	NA	Y	Fair/Poor	339066.106	4035397.796
	99	End Termini	Road/Trail End	NA	Y	NA	339073.517	4035385.259
Kaweah No. 1 Flowline Access Road - Upper Pine	0	Beginning Termini	Road/Trail Start	Aggregate, 8 - 12 ft, Rolling	Y	NA	336650.812	4036018.682
	71	Steel Gate	Safety	with "Upper Pine Road" sign	Y	Good	336658.815	4036026.052
	83	Turnout Left	Safety	good condition, but steep	N	Good	336671.664	4036034.922
	95	General Remark	Drainage	Drainage feature	Y	Good	336666.510	4036017.820
	95	General Remark	Drainage	Drainage feature	Y	Good	336664.370	4036004.027
	49	Waterbar	Drainage	NA	N	Good	336685.335	4036011.918
	49	Waterbar	Drainage	NA	N	Good	336698.850	4036021.581
	49	Waterbar	Drainage	NA	Y	Good	336711.036	4036026.317
	49	Waterbar	Drainage	NA	N	Good	336735.211	4036026.369
	49	Waterbar	Drainage	Drainage feature	N	Good	336750.171	4036008.599
	95	General Remark	Drainage	Drainage feature	N	Good	336753.058	4035984.713
	49	Waterbar	Drainage	NA	N	Good	336758.298	4035974.745
	84	Turnout Right	Safety	NA	N	Good	336752.421	4035970.669
	49	Waterbar	Drainage	NA	N	Good	336759.984	4035968.345
	83	Turnout Left	Safety	NA	N	Good	336759.984	4035968.345
	65	Warning Left	Safety	NA	N	Good	336736.230	4035957.036
	99	End Termini	Road/Trail End	NA	Y	NA	336736.230	4035957.036
Kaweah No. 2 Development								
Kaweah No. 2 Flowline East Access Road	0	Beginning Termini	Road/Trail Start	Paved, rolling	Y	NA	333258.547	4037971.970
	84	Turnout Right	Safety	Turnout start	N	NA	334760.988	4038767.024
	84	Turnout Right	Safety	Turnout end	NA	NA	334747.702	4038751.905
	95	General Remark	Road/Trail Feature	Road elevated by rocks	Y	Good	334674.854	4038684.573
	95	General Remark	Road/Trail Feature	Riparian vegetation, likely perennial creek	NA	NA	334464.855	4038559.782
	81	Bridge	Safety	NA	Y	Good	334464.855	4038559.782
	95	General Remark	Road/Trail Feature	Riparian vegetation on left	NA	NA	334413.602	4038472.063
	41	18" CMP	Drainage	PVC	Y	Good	334373.653	4038548.958
	43	30" CMP	Drainage	End of culvert starts on K2 Canal Rd 5	Y	Good	334334.712	4038564.840
	95	General Remark	Road/Trail Feature	Spigot adjacent to pole	Y	Good	334291.163	4038513.845
	95	General Remark	Road/Trail Feature	Erosion control netting on hill	N	Good	334154.862	4038455.901
	83	Turnout Left	Safety	Start	N	Good	334101.504	4038442.587
	82	Cattleguard	Safety	End	NA	NA	334091.383	4038445.685

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	52	Start Ditch Right	Drainage	NA	N	NA	334077.854	4038467.897
	41	18" CMP	Drainage	NA	NA	NA	334071.293	4038475.659
	53	End Ditch Left	Drainage	Drainage	NA	NA	334071.293	4038475.659
	48	Rolling Dip	Drainage	Point recorded at top of roll	Y	Good	334056.873	4038484.244
	43	30" CMP	Drainage	NA	Y	Good	334032.972	4038490.941
	41	18" CMP	Drainage	Before private gate	Y	Good	333927.460	4038463.927
	70	Road Closure Device	Safety	Private gate open	Y	Good	333924.157	4038464.597
	71	Steel Gate	Safety	Private gate open	Y	Good	333736.292	4038418.779
	13	Aggregate	Road/Trail Feature	Surface Change	NA	NA	333363.702	4038176.668
	44	36" CMP	Drainage	Riparian	Y	Good	333386.563	4038198.210
	44	36" CMP	Drainage	NA	NA	NA	333427.722	4038218.994
	14	Paved	Road/Trail Feature	Surface change	NA	NA	333427.722	4038218.994
	44	36" CMP	Drainage	Two culverts, no water flow	Y	Good	333427.722	4038218.994
	70	Road Closure Device	Safety	Private gate open	NA	NA	333444.386	4038222.619
	95	General Remark	Road/Trail Feature	Blind Spot - Project road intersects with private road/residential driveway	N	NA	333505.208	4038181.126
	95	General Remark	Road/Trail Feature	Blind Spot - Project road intersects with private road/residential driveway	N	NA	333506.717	4038189.577
	84	Turnout Right	Safety	Turnout start	N	NA	333622.031	4038302.212
	84	Turnout Right	Safety	Turnout end	NA	NA	333627.404	4038319.844
	41	18" CMP	Drainage	NA	N	NA	333720.524	4038424.946
	95	General Remark	Road/Trail Feature	Blind Spot - Project road intersects with private road/residential driveway	N	NA	333722.81	4038426.193
	95	General Remark	Road/Trail Feature	Blind Spot - Project road intersects with a Project road (Kaweah No. 2 Flowline Access Road Canal 6W)	N	NA	334098.56	4038447.924
	95	General Remark	Road/Trail Feature	Blind Spot - Project road intersects with a Project road (Kaweah No. 2 Flowline Access Road Canal 5)	N	NA	334341.816	4038569.25
	70	Road Closure Device	Safety	Private gate open	NA	NA	334800.594	4038796.876
	71	Steel Gate	Safety		N	Good	334995.121	4038857.971
	99	End Termini	Road/Trail End		Y	NA	334995.121	4038857.971

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 2 Flowline Access Road - Open Siphon Grids	0	Beginning Termini	Road/Trail Start	Aggregate, 8 - 12 ft, Flat	Y	NA	335410.084	4039276.572
	45	>36" CMP	Drainage	NA	NA	NA	335413.098	4039268.211
	51	Start Ditch Left	Drainage	NA	NA	NA	335413.098	4039268.211
	43	30" CMP	Drainage	culvert that starts at K3POWR, follows to second culvert which crosses this road	Y	Good	335397.776	4039254.267
	44	36" CMP	Drainage	NA	NA	NA	335392.832	4039242.873
	87	Private/NPS	Road/Trail Feature	jurisdictional change	NA	NA	335390.670	4039239.854
	87	NPS/Private	Road/Trail Feature	jurisdictional change	NA	NA	335395.170	4039213.225
	99	End Termini	Road/Trail End	NA	Y	NA	335388.755	4039196.423
Kaweah No. 2 Flowline Access Road - Red Barn	0	Beginning Termini	Road/Trail Start	Aggregate, 12 - 16 ft, Rolling	Y	NA	333602.241	4038282.197
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage	N	NA	333594.791	4038279.345
	81	Bridge	Safety	NA	NA	NA	333540.567	4038489.784
	99	End Termini	Road/Trail End	NA	Y	NA	333540.567	4038489.784
Kaweah No. 2 Intake Road	0	Beginning Termini	Road/Trail Start	Paved, 8 - 12 ft, Flat	Y	NA	335442.252	4039327.245
	42	24" CMP	Drainage	Bent	N	Fair	335442.332	4039331.164
	41	18" CMP	Drainage	drains to flow line	Y	Good	335437.330	4039347.761
	42	24" CMP	Drainage	drains to flow line	Y	Good	335435.950	4039355.730
	83	Turnout Left	Safety	Parking Start	NA	NA	335433.717	4039374.500
	84	Turnout Right	Safety	Left	NA	NA	335434.446	4039383.258
	83	Turnout Left	Safety	NA	NA	NA	335457.840	4039408.384
	87	Private/NPS	Road/Trail Feature	Jurisdictional Change	NA	NA	335474.976	4039434.097
	99	End Termini	Road/Trail End	riparian area by the river	Y	NA	335510.249	4039434.226
Kaweah No. 2 Powerhouse Road	0	Beginning Termini	Road/Trail Start	Paved, 8 - 12 ft, Mountainous	Y	NA	331683.892	4036623.362
	62	Directional Right	Safety	right side of road sign no parking	Y	Good	331591.197	4036710.391
	84	Turnout Right	Safety	NA	Y	Good	331591.197	4036710.391
	84	Turnout Right	Safety	two part turnaround, dirt	Y	Good	331589.884	4036716.531
	62	Directional Right	Safety	NA	Y	Good	331576.775	4036738.534
	64	Regulatory Right	Safety	No parking sign	Y	Good	331576.775	4036738.534
	41	18" CMP	Drainage	partially debris filled	Y	Fair	331567.550	4036762.082
	95	General Remark	Safety	speed bump before powerhouse	Y	Good	331565.096	4036761.512
	68	Route Market Right	Safety	SCE address, wood sign at powerhouse	Y	Good	331566.285	4036764.397
	83	Turnout Left	Safety	SCE only parking, 4 parking spots	Y	Good	331554.586	4036778.520
	95	General Remark	Road/Trail Feature	Parking area start	NA	NA	331549.553	4036786.075
	81	Bridge	Road/Trail Feature	Parking area end	NA	NA	331547.909	4036787.636
	41	18" CMP	Drainage	crosses under road, from powerhouse	Y	Good	331547.909	4036787.636
	95	General Remark	Safety	speed bump after bridge	Y	Good	331540.751	4036796.000
	95	General Remark	Safety	Firelane start	Y	Good	331546.900	4036794.389

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	64	Regulatory Right	Safety	No parking, Fire land, Keep clear at all times	Y	Good	331546.900	4036794.389
	95	General Remark	Safety	Fireland end	NA	NA	331531.074	4036805.426
	64	Regulatory Right	Safety	No parking, Fire land, Keep clear at all times	Y	Good	331531.074	4036805.426
	95	General Remark	Road/Trail Feature	6 public parking spots, edison beach, left side	Y	Good	331542.988	4036790.056
	95	General Remark	Road/Trail Feature	Parking end	NA	NA	331524.582	4036804.674
	65	Warning Left	Safety	SCE notice sign SCE	Y	Good	331523.845	4036802.299
	43	30" CMP	Drainage	series of 3 CMP's in a row each 30"	Y	Good	331480.537	4036859.037
	66	Warning Right	Safety	danger sign, keep out of stream bed right	Y	Good	331480.840	4036863.692
	84	Turnout Right	Safety	Turnout start	Y	Good	331477.319	4036863.039
	84	Turnout Right	Safety	Turnout end	NA	NA	331476.272	4036874.026
	65	Warning Left	Safety	notice sign english and spanish	Y	Good	331639.477	4036667.279
	41	18" CMP	Drainage	culvert good	Y	Good	331631.505	4036675.996
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, missing pavement on right side of road	Y	Poor	331631.505	4036675.996
	65	Warning Left	Safety	notice sign english and spanish	Y	Fair	331610.836	4036690.221
	95	General Remark	Road/Trail Feature	Start of gunnite along road	NA	NA	331605.739	4036693.164
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, downhill side of road, stream reinforced to powerhouse with many holes/cracks	Y	Fair	331605.739	4036693.164
	95	General Remark	Safety	Old sign post	Y	Poor	331599.925	4036700.792
	99	End Termini	Road/Trail End	NA	Y	NA	331474.013	4036873.915
Kaweah No. 2 Flowline Center Access Road	0	Beginning Termini	Road/Trail Start	Paved, rolling	Y	NA	332900.205	4037507.261
	12	Native	Road/Trail Feature	Surface change	NA	NA	332860.236	4037596.732
	95	General Remark	Safety	Old gate posts	NA	NA	332818.915	4037644.827
	84	Turnout Right	Safety	Turnout start	NA	NA	332795.877	4037677.905
	84	Turnout Right	Safety	Turnout stop	NA	NA	332790.023	4037694.447
	71	Steel Gate	Safety	Gate open	Y	Good	332863.153	4037704.282
	95	General Remark	Drainage	Old buried pipe	Y	Fair	333085.981	4037949.242
	72	Powder River Gate	Safety	Locked SCE gate	Y	Good	333106.346	4037981.240
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage start	NA	NA	333115.510	4038006.788
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage	Y	Poor	333115.510	4038006.788
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage end	NA	NA	333127.448	4038024.995
	41	18" CMP	Drainage	runs parallel to road, flattened	Y	Poor	333161.666	4038048.298
	52	Start Ditch Right	Drainage	NA	Y	Good	333198.679	4038032.223
	54	End Ditch Right	Drainage	NA	N	Good	333199.638	4038010.663
	70	Road Closure Device	Safety	Private gate open	Y	NA	333248.104	4037984.286
	95	General Remark	Safety	Gate post only, no gate	Y	Poor	333116.208	4038128.876
	99	End Termini	Road/Trail End		Y	NA	333257.450	4037973.509

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 2 Flowline Access Road - Canal 2 Brushout Grid	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Flat	Y	NA	334999.264	4038817.077
	71	Steel Gate	Safety		N	Good	334999.264	4038817.077
	99	End Termini	Road/Trail End	NA	Y	NA	334979.452	4038804.485
Kaweah No. 2 Flowline Access Road - Canal 4 East	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	Y	NA	334697.108	4038700.627
	99	End Termini	Road/Trail End	NA	Y	NA	334679.476	4038810.632
Kaweah No. 2 Flowline Access Road - Canal 4 West	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Mountainous	Y	NA	334515.578	4038562.586
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage runnels start	NA	NA	334541.937	4038643.094
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage runnels end	NA	NA	334580.224	4038663.726
	95	General Remark	Road/Trail Feature	Turn around in road	NA	NA	334602.066	4038722.332
	99	End Termini	Road/Trail End	NA	Y	NA	334599.068	4038726.029
Kaweah No. 2 Flowline Access Trail - Canal 5	0	Beginning Termini	Road/Trail Start	Native, Rolling	Y	NA	334343.088	4038569.474
	43	30" CMP	Drainage	NA	NA	NA	334343.146	4038572.831
	41	18" CMP	Drainage	culvert end of K2FAR	Y	Good	334369.468	4038594.821
	95	General Remark	Road/Trail Feature	Buried PVC	N	Good	334423.355	4038669.502
	99	End Termini	Road/Trail End	end of loop	Y	NA	334479.723	4038787.729
Kaweah No. 2 Flowline Access Road - Canal 6 East	0	Beginning Termini	Road/Trail Start	Native, < 8 ft, Rolling	Y	NA	334210.605	4038482.678
	99	End Termini	Road/Trail End	NA	Y	NA	334269.479	4038569.388
Kaweah No. 2 Flowline Access Road - Canal 6 West	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Rolling	Y	NA	334098.771	4038448.603
	99	End Termini	Road/Trail End	NA	Y	NA	334122.913	4038479.053
Kaweah No. 2 Flowline Access Road - Flume 11	0	Beginning Termini	Road/Trail Start	Native, 12 - 16 ft, Mountainous	Y	NA	332419.054	4037665.196
	99	End Termini	Road/Trail End	NA	Y	NA	332371.907	4037672.462
Kaweah No. 2 Flowline Access Road - Flume 8	0	Beginning Termini	Road/Trail Start	Native, < 8 ft, Mountainous	Y	NA	333137.948	4038054.985
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage start	NA	NA	333135.769	4038058.452
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage end	NA	NA	333131.432	4038085.198
	99	End Termini	Road/Trail End	NA	Y	NA	333116.208	4038128.876
Kaweah No. 2 Flowline West Access Road	0	Beginning Termini	Road/Trail Start	Paved, 8 - 12 ft	Y	NA	331698.556	4036619.409
	95	General Remark	Drainage	Concrete waterbar across rd. old pipe filled with debris	Y	NA	331939.903	4037030.797
	41	18" CMP	Drainage	completely buried	Y	Poor	331984.250	4037047.121
	71	Steel Gate	Safety	NA	Y	NA	331993.108	4037049.912
	41	18" CMP	Drainage	partially filled	Y	Poor	332000.197	4037064.943
	43	30" CMP	Drainage	partially filled	Y	Fair	332008.322	4037116.836
	41	18" CMP	Drainage	partially filled	Y	Poor	332046.113	4037224.492
	41	18" CMP	Drainage	partially filled	Y	Poor	332105.209	4037331.469
	43	30" CMP	Drainage	NA	Y	Good	332139.580	4037363.639
	43	30" CMP	Drainage	downhill side buried	Y	Good	332223.305	4037451.467
	41	18" CMP	Drainage	completely flattened	Y	Poor	332261.218	4037493.205

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	41	18" CMP	Drainage	partially filled	N	Fair	332282.244	4037546.842
	41	18" CMP	Drainage	partially filled	N	Poor	332280.500	4037585.406
	41	18" CMP	Drainage	NA	N	Good	332317.163	4037629.546
	49	Waterbar	Drainage	NA	Y	Good	332325.567	4037627.101
	41	18" CMP	Drainage	NA	NA	NA	332378.336	4037652.374
	67	Route Marker Left	Safety	SCE private drive sign	Y	Good	331699.268	4036626.585
	95	General Remark	Drainage	< 18" metal pipe blocked, PVC pipe downstream	Y	Poor	331705.160	4036625.529
	95	General Remark	Drainage	Drainage feature	NA	NA	331708.675	4036632.763
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, missing aggregate	Y	Poor	331710.509	4036635.748
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, pothole, missing aggregate	Y	Poor	331710.841	4036665.579
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, missing aggregate	Y	Poor	331676.675	4036751.173
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, damage due to standing water	N	Poor	331723.879	4036843.328
	72	Powder River Gate	Safety	SCE locked gate	Y	Good	331687.346	4036907.731
	12	Native	Road/Trail Feature	Surface change	NA	NA	331691.655	4036912.795
	41	18" CMP	Drainage	partially blocked both ends	Y	Fair	331696.984	4036919.504
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage start left side	Y	Poor	331711.729	4036924.105
	43	30" CMP	Drainage	partially blocked, partially bent	Y	Fair	331762.616	4036921.178
	41	18" CMP	Drainage	partially blocked uphill side	Y	Poor	331828.256	4036931.424
	41	18" CMP	Drainage	NA	Y	Good	331770.458	4036967.422
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, corner washed out	Y	Poor	331740.265	4036983.395
	66	Warning Right	Safety	NA	Y	Good	331825.937	4037018.317
	95	General Remark	Road/Trail Feature	Spillway crosses under road	Y	Good	331824.517	4037021.945
	43	30" CMP	Drainage	partially covered with veg	N	Fair	331868.178	4037037.192
	66	Warning Right	Safety	NA	Y	Good	331874.492	4037032.089
	95	General Remark	Road/Trail Feature	Spillway under road	Y	Good	331879.451	4037031.475
	99	End Termini	Road/Trail End	good turnaround at end	Y	NA	332454.330	4037665.775
Kaweah No. 2 Forebay Road	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Mountainous	Y	NA	331756.754	4036920.229
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage, water erosion	Y	Poor	331753.520	4036924.582
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage	NA	NA	331729.165	4036941.174
	81	Bridge	Safety	NA	Y	Good	331690.437	4036971.662
	48	Rolling Dip	Drainage	NA	Y	Poor	331633.671	4036998.379
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage	Y	Poor	331628.794	4037045.324
	95-1	Road/Trail Damage	Road/Trail Feature	Road damage end	NA	NA	331644.705	4037065.210
	95	General Remark	Safety	Road uneven	NA	NA	331669.936	4037074.175
	95	General Remark	Safety	Road uneven	NA	NA	331704.472	4037104.500
	99	End Termini	Road/Trail End	NA	Y	NA	331742.125	4037024.979

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 2 Penstock Road	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Mountainous	Y	NA	331675.981	4036832.991
	99	End Termini	Road/Trail End	NA	Y	NA	331681.471	4036888.646
Kawaeh No. 3 Development								
Kaweah No. 3 Powerhouse Road	0	Beginning Termini	Road/Trail Start	Pave, 8 - 12 ft, Mountainous, locked SCE gate	Y	NA	335367.619	4039256.266
	71	Steel Gate	Safety	locked SCE gate	Y	Good	335380.106	4039263.130
	45	>36" CMP	Drainage	ends under K2FAROS	Y	Good	335398.657	4039278.207
	83	Turnout Left	Safety	Turnout start	NA	NA	335398.772	4039277.361
	83	Turnout Left	Safety	Turnout end	NA	NA	335410.779	4039281.995
	81	Bridge	Safety	Bridge over flowline	Y	Good	335447.618	4039327.464
	95	General Remark	Road/Trail Feature	Riparian vegetation	NA	NA	335521.002	4039286.052
	81	Bridge	Safety	over Kaweah riparian vegetation	Y	Good	335521.002	4039286.052
	81	Bridge	Safety	Bridge over river	NA	NA	335548.396	4039303.514
	66	Warning Right	Safety	No trespassing sign, SCE temporary	N	Good	335583.776	4039341.161
	66	Warning Right	Safety	SCE, temporary sign	N	Good	335586.377	4039361.398
	99	End Termini	Road/Trail End	NA	Y	NA	335585.499	4039360.962
Kaweah No. 3 Forebay Road	0	Beginning Termini	Road/Trail Start	Native, 8 - 12 ft, Mountainous	Y	NA	335584.184	4039336.634
	51	Start Ditch Left	Drainage	Partially covered	Y	Fair	336111.816	4038817.885
	53	End Ditch Left	Drainage	NA	NA	NA	336115.186	4038813.646
	95	General Remark	Safety	Old gate posts	Y	Poor	336117.281	4038713.406
	52	Start Ditch Right	Drainage	primitive, but functional	Y	Fair	336072.189	4038766.686
	52	Start Ditch Right	Drainage	primitive, but functional	N	Fair	335968.540	4038887.303
	54	End Ditch Right	Drainage	NA	NA	NA	335965.281	4038888.517
	52	Start Ditch Right	Drainage	NA	NA	NA	335903.935	4038897.635
	54	End Ditch Right	Drainage	NA	NA	NA	335899.788	4038901.406
	52	Start Ditch Right	Drainage	ditch to culvert	N	Good	335839.798	4039039.442
	43	30" CMP	Drainage	NA	NA	NA	335842.273	4039051.735
	54	End Ditch Right	Drainage	NA	NA	NA	335842.273	4039051.735
	52	Start Ditch Right	Drainage	pipe bent but functional	N	Good	335870.880	4039127.002
	44	36" CMP	Drainage	NA	NA	NA	335876.845	4039135.190
	54	End Ditch Right	Drainage	NA	NA	NA	335876.845	4039135.190
	42	24" CMP	Drainage	Deep culvert, exit unknown	N	NA	335833.532	4039184.248
	42	24" CMP	Drainage	NA	N	Good	335719.604	4039106.843
	41	18" CMP	Drainage	partially covered	N	Fair	335631.176	4039063.523
	52	Start Ditch Right	Drainage	NA	NA	NA	335582.920	4038889.782
	41	18" CMP	Drainage	NA	NA	NA	335580.850	4038892.150
	54	End Ditch Right	Drainage	NA	NA	NA	335580.850	4038892.150

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
	52	Start Ditch Right	Drainage	ditch to culvert	N	Good	335524.553	4039012.995
	42	24" CMP	Drainage	NA	N	Good	335524.553	4039012.995
	41	18" CMP	Drainage	NA	NA	NA	335529.722	4039018.642
	54	End Ditch Right	Drainage	ditch to culvert	N	Good	335529.722	4039018.642
	52	Start Ditch Right	Drainage	ditch to culvert	N	Good	335528.204	4039104.960
	42	24" CMP	Drainage	NA	N	Good	335528.204	4039104.960
	42	24" CMP	Drainage	NA	NA	NA	335529.281	4039107.501
	54	End Ditch Right	Drainage	ditch to culvert	N	Good	335529.281	4039107.501
	52	Start Ditch Right	Drainage	ditch to culvert	N	Good	335565.362	4039189.403
	42	24" CMP	Drainage	NA	N	Good	335565.362	4039189.403
	42	24" CMP	Drainage	NA	NA	NA	335595.041	4039224.673
	54	End Ditch Right	Drainage	ditch to culvert	N	Good	335595.041	4039224.673
	52	Start Ditch Right	Drainage	NA	NA	NA	335595.901	4039310.937
	54	End Ditch Right	Drainage	NA	NA	NA	335598.659	4039324.262
	71	Steel Gate	Safety	locked, SCE gate, red	Y	Good	335591.040	4039331.893
	72	Powder River Gate	Safety	NA	NA	Good	336212.143	4039120.740
	83	Turnout Left	Safety	Turnaround point before forebay gate	N	Good	336206.264	4039084.997
	84	Turnout Right	Safety	Turnout end	NA	NA	336191.408	4039069.913
	51	Start Ditch Left	Drainage	NA	NA	NA	336086.507	4038892.179
	41	18" CMP	Drainage	Partially covered, old	Y	Fair	336089.591	4038887.435
	52	Start Ditch Right	Drainage	NA	NA	NA	336089.591	4038887.435
	87	Private/BLM	Road/Trail Feature	jurisdictional change	NA	NA	335523.066	4039044.330
	87	BLM/Private	Road/Trail Feature	jurisdictional change	NA	NA	335609.862	4039042.722
	87	Private/BLM	Road/Trail Feature	jurisdictional change	NA	NA	335756.154	4039178.014
	99	End Termini	Road/Trail End		Y	NA	336272.562	4039207.668

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Project Trails								
Kaweah No. 1 Development								
Kaweah No. 1 Flowline Access Trail - Unnamed	0	Beginning Termini	Road/Trail Start	NA	Y	NA	339074.815	4035385.522
	99	End Termini	Road/Trail End	NA	Y	NA	339078.648	4035413.417
~~Kaweah No. 1 Flowline Access Trail - Grand Canyon~~								
~~Kaweah No. 1 Solar Panel Access Trail~~								
Kaweah No. 2 Development								
Kaweah No. 2 Flowline Access Trail - Canal 11	0	Beginning Termini	Road/Trail Start	NA	Y	NA	332461.916	4037662.729
	99	End Termini	Road/Trail End	NA	Y	NA	332469.759	4037683.922
Kaweah No. 2 Flowline Access Trail - Canal 13	0	Beginning Termini	Road/Trail Start	NA	Y	NA	332274.029	4037499.108
	99	End Termini	Road/Trail End	NA	Y	NA	332269.925	4037510.680
Kaweah No. 2 Flowline Access Trail - Canal 15	0	Beginning Termini	Road/Trail Start	NA	Y	NA	331928.259	4037026.348
	99	End Termini	Road/Trail End	NA	Y	NA	331914.267	4037042.800
Kaweah No. 2 Flowline Access Trail - Canal 2	0	Beginning Termini	Road/Trail Start	Native, 4 ft, Flat	Y	NA	335204.120	4038784.260
	99	End Termini	Road/Trail End	NA	Y	NA	335207.811	4038771.125
	71	Steel Gate	Safety	locked gate, no SCE access to flow line	Y	Good	335204.120	4038784.260
Kaweah No. 2 Flowline Access Trail - Canal 4 East	0	Beginning Termini	Road/Trail Start	NA	Y	NA	334675.143	4038802.017
	99	End Termini	Road/Trail End	NA	Y	NA	334662.337	4038802.780
Kaweah No. 2 Flowline Access Trail - Canal 4 West	99	End Termini	Road/Trail End		Y	NA	334613.111	4038730.645
	0	Beginning Termini	Road/Trail Start		Y		334603.327	4038723.281
Kaweah No. 2 Flowline Access Trail - Canal 5	0	Beginning Termini	Road/Trail Start	Native, Rolling	Y	NA	334486.884	4038824.796
	66	Warning Right	Safety	No trespassing sign	Y	Good	334480.134	4038829.186
	99	End Termini	Road/Trail End		Y	NA	334475.743	4038831.092
Kaweah No. 2 Flowline Access Trail - Canal 6	0	Beginning Termini	Road/Trail Start	Native, < 8 ft, Rolling	Y	NA	334255.294	4038546.338
	99	End Termini	Road/Trail End	NA	Y	NA	334241.810	4038548.137
Kaweah No. 2 Flowline Access Trail - Open Siphon	0	Beginning Termini	Road/Trail Start	Native, flat	Y	NA	335347.330	4039030.031
	87	NPS/Private	Road/Trail Feature	jurisdictional change	NA	NA	335359.517	4039029.851
	99	End Termini	Road/Trail End	Short wooden plank for flowline access	Y	NA	335372.167	4039021.873
Kaweah No. 2 Flowline Access Trail - Wildlife Crossing 2	0	Beginning Termini	Road/Trail Start	NA	Y	NA	335402.308	4039223.252
	99	End Termini	Road/Trail End	NA	Y	NA	335413.820	4039223.254
Kaweah No. 2 Flowline Access Trail - Water User 14	0	Beginning Termini	Road/Trail Start	NA	Y	NA	331999.528	4037080.755
	99	End Termini	Road/Trail End	NA	Y	NA	331993.354	4037071.794
Kaweah No. 2 Flowline Access Trail - Water User 9	0	Beginning Termini	Road/Trail Start	NA	Y	NA	333086.456	4037950.716
	99	End Termini	Road/Trail End	NA	Y	NA	333066.270	4037973.224
Kaweah No. 2 Powerhouse River Access Trail	0	Beginning Termini	Road/Trail Start	NA	Y	NA	331607.162	4036692.334
	99	End Termini	Road/Trail End	NA	Y	NA	331613.172	4036670.882

Facility Name	Road Feature Log Code	Road Feature Description	Feature Type	Comments	Photo	Condition	UTM E	UTM N
Kaweah No. 3 Development								
Kaweah No. 3 Flowline Access Trail	0	Beginning Termini	Road/Trail Start	NA	Y	NA	336289.856	4039199.779
	72	Powder River Gate	Safety		Y	Good	336289.856	4039199.779
	95	General Remark	Safety	footbridge with warning sign	N	NA	336296.375	4039202.820
	65	Warning Left	Safety	warning sign on footbridge	Y	Good	336296.375	4039202.820
	95	General Remark	Safety	footbridge	N	Good	336306.250	4039202.917
	95	General Remark	Safety	WX25	N	Good	336362.318	4039205.142
	95	General Remark	Safety	WX24	N	Good	336412.103	4039177.925
	95	General Remark	Safety	WX23	N	Good	336480.181	4039204.119
	95	General Remark	Safety	WX22	Y	Good	336539.364	4039164.468
	95	General Remark	Drainage	drainage feature, overgrown, old stone	Y	Poor	336543.515	4039156.656
	95	General Remark	Safety	WX21	N	Good	336569.706	4039144.598
	95	General Remark	Drainage	Gully with high flows has water, riparian area	Y	NA	336572.800	4039136.454
	95	General Remark	Safety	Foot bridge, narrow, 1 ft wide	N	Good	336602.535	4039157.582
	95	General Remark	Safety	WX20	N	Good	336636.397	4039169.191
	95	General Remark	Safety	WX19	N	Good	336683.539	4039152.881
	95	General Remark	Safety	Footbridge	N	Good	336644.942	4039171.982
	95	General Remark	Safety	WX18	N	Good	336708.085	4039162.064
	41	18" CMP	Drainage	Old drainage feature	Y	Poor	336744.261	4039180.632
	95	General Remark	Safety	WX17	Y	Good	336744.872	4039190.425
	95	General Remark	Drainage	Old drainage feature, below gully	Y	Good	336746.182	4039190.316
	95	General Remark	Safety	Old retaining wall	N	Fair	336755.820	4039270.476
	95	General Remark	Safety	WX16 - ramp to access the bridge in poor condition	Y	Fair	336762.843	4039281.205
	95	General Remark	Safety	Foot bridge, parallel to flowline, with guard rail	Y	Good	336768.889	4039286.489
	95-1	Road/Trail Damage	Road/Trail Feature	pothole	Y	Poor	336886.029	4039353.572
	95	General Remark	Safety	WX15	Y	Good	336904.420	4039366.632
	95	General Remark	Safety	Old sign, no longer legible, could be park boundary	Y	Poor	336977.759	4039424.955
	99	End Termini	Road/Trail End	NA	Y	NA	336939.604	4039399.343

Notes: Red = Changes from LAND 1 - TSP

Appendix D

Photo Log

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Photo D-1. Kaweah No. 3 Powerhouse Road, road start and gate, good condition, April 24, 2018

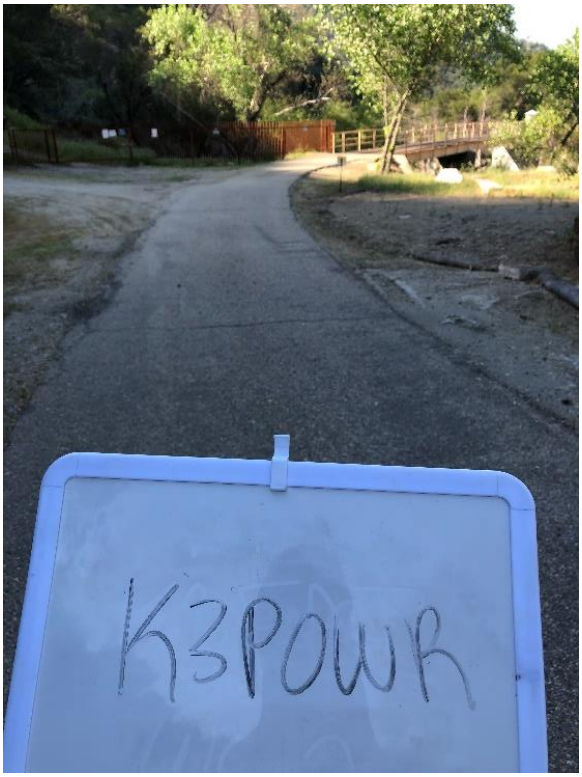

Photo D-2. Kaweah No. 3 Powerhouse Road, road end, good condition, April 24, 2018

Photo D-3. Kaweah No. 2 Flowline Access Trail – Canal 5, trail start, good condition, April 25, 2018

Photo D-4. Kaweah No. 2 Flowline Access Trail – Canal 5, trail end, good condition, April 25, 2018

Photo D-5. Kaweah No. 3 Powerhouse Road, bridge, good condition, April 24, 2018

Photo D-6. Kaweah No. 2 Flowline East Access Road, culvert, good condition, April 25, 2018

Photo D-7. Kaweah No. 2 Flowline West Access Road, culvert, poor condition, April 24, 2018

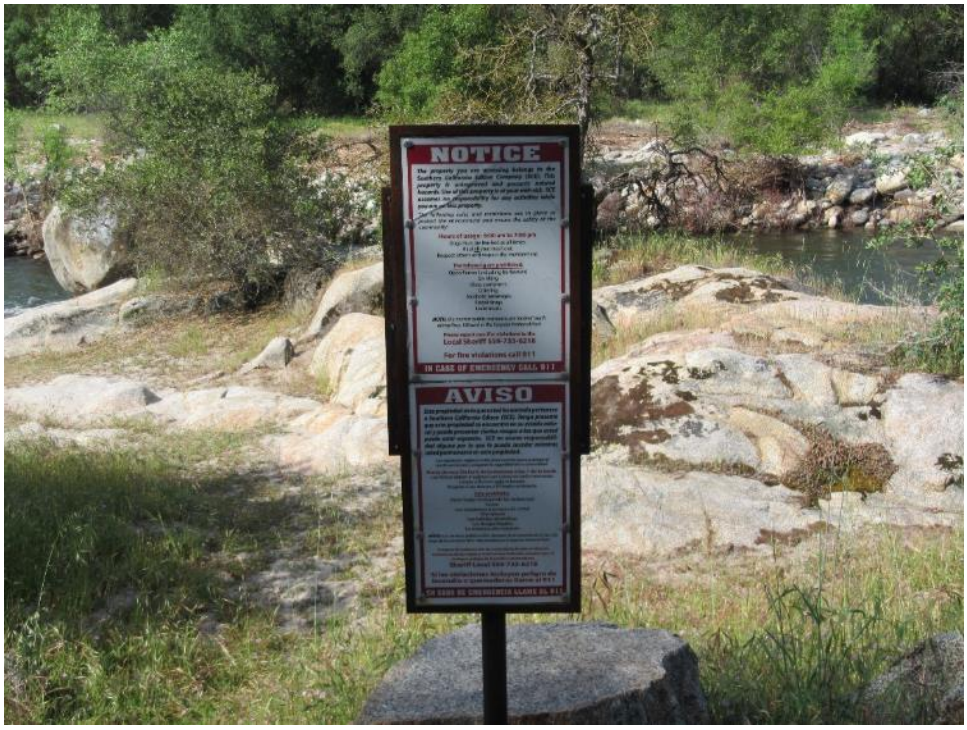

Photo D-8. Kaweah No. 2 Powerhouse Road, warning sign, good condition, April 24, 2018

Photo D-9. Kaweah No. 2 Powerhouse Road, sign, poor condition, April 24, 2018

Photo D-10. Kaweah No. 2 Powerhouse Road, turnout, good condition, April 24, 2018

Photo D-11. Kaweah No. 2 Powerhouse Road, speed bump, good condition, April 24, 2018

Photo D-12. Kaweah No. 2 Flowline West Access Road, gate, good condition, April 24, 2018

Photo D-13. Kaweah No. 1 Flowline Access Road – Unnamed, road start and gate, poor condition, May 8, 2018

Photo D-14. Kaweah No. 1 Flowline Access Road – Grapevine, example of road damage, May 8, 2018

Photo D-15. Kaweah No. 2 Flowline West Access Road, example of road damage, April 24, 2018

Photo D-16. Intersection of Kaweah No. 2 Flowline East Access Road and Kaweah No. 2 Flowline Access Road – Canal 6 West, example of blind spot, October 3, 2018

Photo D-17. Intersection of Kaweah No. 2 Flowline East Access Road and private driveway, example of blind spot, October 3, 2018

Photo D-18. Kaweah No. 1 Forebay Road, example of blind intersection with a mountain biking trail, May 9, 2018

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Kaweah Project, FERC Project No. 298

LAND 2 – Aesthetic Resources
Final Technical Study Report

December 2019

Southern California Edison Company
Regulatory Support Services
1515 Walnut Grove Avenue, Rosemead, CA 91770

Table of Contents

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List of Acronyms

ANSI	American National Standards Institute
BLM	United States Bureau of Land Management
cfs	cubic feet per second
EVC	existing visual condition
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
KEA	Keller Environmental Associates
KOP	Key Observation Point(s)
msl	mean sea level
NPS	National Park Service
RMP	Resource Management Plan
SCE	Southern California Edison Company
SKC	Sequoia and Kings Canyon
SNP	Sequoia and Kings Canyon National Park
TSP	Technical Study Plan
TSR	Technical Study Report
VRM	Visual Resource Management System (BLM)
VRR	Visual Resource Report
WJV	WJV Acoustics, Inc.

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1 INTRODUCTION

This Technical Study Report (TSR) describes the data and findings developed by Southern California Edison Company (SCE) in association with implementation of the LAND 2 – Aesthetic Resources Technical Study Plan (LAND 2 – TSP) for the Kaweah Project (Project). The LAND 2 – TSP was included in SCE's Revised Study Plan (RSP)[1] (SCE 2017a) and was approved by the Federal Energy Regulatory Commission (FERC) on October 24, 2017 as part of its Study Plan Determination for the Project (FERC 2017). Specifically, this report describes the methods and results of the visual resource study and noise assessments completed in 2018.

2 STUDY OBJECTIVES

The LAND 2 – TSP included three primary study elements: a Visual Resource Study; a Helicopter Noise Study; and a Kaweah No. 3 Forebay Spill Study. The study objectives associated with each of these study elements are identified below.

2.1 Visual Resource Study

- Identify and map visual resources in the vicinity of the Kaweah Project, including visual management objectives established by the Bureau of Land Management (BLM), Tulare County, and/or the National Park Service (NPS), as appropriate.
- Document the existing visual condition (EVC) of Project facilities from Key Observation Points (KOP) established in consultation with the BLM, Tulare County, and/or the NPS, as appropriate.
- Determine whether the Project facilities meet established BLM, Tulare County, and/or NPS visual resource management objectives and assess compatibility of Project facilities with surrounding landscape.

2.2 Helicopter Noise Study

- Assess helicopter noise associated with routine operation and maintenance of the Project.

2.3 Kaweah No. 3 Forebay Spill Study

- Assess visual condition and noise associated with spills from the Kaweah No. 3 Forebay.

3 EXTENT OF STUDY AREA

The study areas for each of the above-mentioned study elements are described below.

3.1 Visual Resource Study

The Study Area for the visual resource study included the Project facilities identified in Table LAND 2-1 and their associated viewsheds. The viewsheds include primary travel routes, recreation areas, and water bodies from which the existing Project facilities are visible to the public. The primary Project facilities, travel routes, and water bodies in the vicinity of the Kaweah Project are shown on Map LAND 2-1.

[1] SCE filed a Proposed Study Plan (PSP) on May 24, 2017 (SCE 2017b). Three comments were filed on the PSP, however, they did not result in revisions to any of the study plans. Therefore, SCE filed a Revised Study Plan (RSP) on September 19, 2017, which stated that the PSP, without revision, constituted its RSP. The FERC subsequently issued a Study Plan Determination on October 24, 2017 approving all study plans for the Kaweah Project.

3.2 Helicopter Noise Study

The Study Area for the helicopter noise study included the following two recreation sites located within the Sequoia National Park (SNP), in the vicinity of the Ash Mountain Heliport:

- Foothill Visitor Center Picnic Area; and
- Indian Head River Trailhead Parking Area.

The location of these two recreation facilities, and the Ash Mountain Heliport are shown on Map LAND 2-2. As required in the LAND 2 – TSP, these two sites were identified as “noise sensitive locations” in consultation with the NPS.

3.3 Kaweah No. 3 Forebay Spill Study

The Study Area for the Kaweah No. 3 Forebay Spill Study was conducted at the same two recreation sites selected for the Helicopter Noise Study, specifically, the Foothill Visitor Center Picnic Area and the Indian Head River Trailhead Parking Area. The location of these two facilities and the Kaweah No. 3 Forebay and spillway channels are shown on Map LAND 2-2. As required in the LAND 2 – TSP, these two study sites were identified in consultation with the NPS.

4 STUDY APPROACH AND METHODS

The Kaweah Project facilities are located in Tulare County on private lands and public lands administered by the BLM. Therefore, aesthetic resources were primarily assessed with respect to the management objectives established by Tulare County and/or the BLM. Although none of the Project facilities are located within the boundaries of the SNP, some are visible or can be heard from select locations within the SNP. The SNP is managed by the NPS. Therefore, NPS visual and noise management objectives were also considered in this study. Information related to the three study elements discussed in this report was obtained during in-person meetings and through e-mail correspondences with BLM, Tulare County, and NPS representatives. Table LAND 2-2 identifies the key agency representatives that provided information that was used to implement the LAND 2 - TSP.

4.1 Visual Resource Study

This section summarizes the methods that were used to implement the Visual Resource Study, organized to address the study objectives identified above.

4.1.1 Compilation of Visual Resource Management Direction

Visual resource management direction contained in the following documents was compiled, reviewed, and summarized:

- BLM Bakersfield Field Office Approved Resource Management Plan (BLM 2014);
- Tulare County General Plan 2030 Update (Tulare County 2012);
- Pertinent area plans, including the Three Rivers Community Plan (Tulare County 1980) and the draft Three Rivers Community Plan Update (Tulare County 2009); and,
- Sequoia & Kings Canyon General Management Plan (NPS 2012).

In addition, SCE consulted with the BLM, Tulare County, and the NPS to obtain more specific information regarding policies and criteria related to visual resources, and to identify KOPs. Consultation activity related to the visual resource study is summarized in Table LAND 2-2.

4.1.2 Preparation of Visual Resource Inventory Maps and Tables

A map showing the location of the Project facilities relative to the BLM's Visual Resource Management (VRM) classifications was developed using Geographic Information System (GIS) data provided by the BLM's Bakersfield Office on July 11, 2018. The information provided by the BLM was also used to develop a table that identifies the BLM VRM classifications associated with each Project facility, as applicable.

4.1.3 Existing Visual Condition Assessment

All of the Project facilities that are readily visible from public viewing locations were systematically evaluated in 1989 as part of the previous relicensing effort. The results of that study are documented in the following report prepared by Keller Environmental Associates (KEA): *Kaweah Hydroelectric Project Visual Resources Report* (1989). The visual resource information available in the 1989 Visual Resources Report (VRR) was used as a basis for the current study.

Most of the Project facilities are located on private property or cross public land managed by the BLM. Tulare County does not utilize a systematic visual resource management assessment process. As such, for the 1989 study, KEA assessed the visual compatibility of the Kaweah Project facilities using the BLM's VRM System, following the Visual Resource Inventory guidelines outlined in BLM Manual Handbook 8410-1 (BLM 1986a) and the visual contrast rating system guidelines outlined in the BLM's Visual Resource Contrast Rating Manual H-8431-1 (BLM 1986b). These guidelines are the same as those used today. Accordingly, the current assessment was conducted using the same methods that were used for the 1989 study.

As specified in the LAND 2 – TSP, the Project facilities that were evaluated in the 1989 VRR were not reevaluated as part of the current study. The current study focused on assessing the Project facilities that were newly constructed or substantially modified after 1989. Based on information provided by SCE, two facilities meet these criteria. Specifically, a new maintenance building was erected at the Kaweah No. 1 Powerhouse Campus in 2012 and the intake structure associated with the Kaweah No. 2 Diversion Dam was modified in 2012. The locations of these two facilities are shown on Map LAND 2-3.

The EVC of the facilities that were constructed or substantially modified after 1989 were assessed with respect to the existing landscape following the BLM VRM system. The assessment was conducted as outlined in the following.

Selection of Key Observation Points

KOPs were identified during site visits conducted on May 9 and 10, 2018, based on information provided by the BLM, Tulare County, and NPS visual resource specialists during the consultation process (refer to Table LAND 2-2). Per the request of the resource agencies, the KOPs were located in areas were the Kaweah No. 1 Powerhouse Campus and the Kaweah No. 2 Diversion and intake structure are readily visible to the public. The locations of these KOPs are shown on Map LAND 2-3 and identified as follows:

- KOP 1 – This KOP is located at a small unpaved turnout located on the south side of Highway 198, across from the Kaweah No. 1 Powerhouse Campus. The new maintenance building erected in 2012 is visible from this location.
- KOP 3 – This KOP is located at a paved, scenic pullout located on the south side of Highway 198, approximately 750 feet east of the Indian Head River Trail Parking Area. The Kaweah No. 2 Diversion Dam is visible from this location.

Note that two additional KOPs (KOP 2 and KOP 4) were selected during this site visit. However, these KOPs are associated with the Kaweah No. 3 Forebay Spill Study, and therefore discussed later in this report.

Assessment from KOPs

The maintenance building at the Kaweah No. 1 Powerhouse Campus and Kaweah No. 2 Diversion Dam intake structure were assessed from the KOPs on May 9 and 10, 2018, respectively. As specified in the BLM guidelines, the assessment considered scenic quality, visual sensitivity, distance zones, and visual contrast. Since overall visual conditions along the Kaweah River have not substantially changed since 1989, the current study utilized the scenic quality, visual sensitivity and distance zone findings identified in the previous report (KEA 1989) for the current study. These parameters are briefly described below.

Scenic Quality

Scenic quality measures the visual appeal and uniqueness of a tract of land in comparison with the physiographic province (BLM 1986a). Utilizing and building upon information previously developed by the BLM, KEA identified three scenery classes in the Project area, defined as follows:

- Class A: Areas of high scenic quality with landscapes that exhibited greater visual diversity or composition than the typical landscape;
- Class B: Areas of representative scenic quality with landscapes that were characteristic of and seen throughout the region; and
- Class C: Areas of minimal scenic quality with landscapes that exhibited less variety in line form, color, and texture than the characteristic landscape are assigned. This classification included areas disturbed or significantly degraded by man's activities.

Scenic Quality has not substantially changed since 1989. Therefore, the scenic quality classes identified in the KEA report were utilized for the current study.

Visual Sensitivity

Visual sensitivity describes the relative degree of user interest and concern for visual changes in the landscape based on user volume and user attitudes toward visual change (KEA 1989). KEA utilized visitor use and volume data provided by the BLM and NPS to assign low, medium, or high visual sensitivity levels in the Project area. Visual sensitivity has not changed since 1989. Therefore, the sensitivity levels identified in the KEA report were utilized for the current study.

Distance Zones

Distance zones relate to the distance between a Project facility and a viewer, as seen from primary travel routes or observation points. The BLM uses three distance zones, but KEA used four distance zones, defined as follows. The distance zone definitions defined by KEA were used for the current study.

- Foreground – areas are within 0.5 mile or less from the viewing location;
- Middleground – areas greater than 0.5 mile and up 5 miles from the viewing location;
- Background – areas within 5 to 15 miles from the viewing location; and
- Seldom Seen – areas hidden from view.

Visual Contrast

Visual contrast is the degree to which a facility affects the visual and aesthetic quality in relation to the existing landscape character (KEA 1989). The amount of contrast between a project's EVC and the existing landscape character is measured by separating the landscape into major features (landform, vegetation, and structures) and then assessing the degree of change in contrast to each of the basic visual elements (form, line, color, and texture), utilizing the following rating structure:

- None – the element contrast is not visible or perceived;

- Weak – the element contrast can be seen but does not attract attention;
- Moderate – the element contrast begins to attract attention and is not easily overlooked; and,
- Strong – the element contrast attracts attention and will not be overlooked.

For the current study, the new and/or modified Project facilities were assessed using the BLMs Visual Contrast Rating Worksheets, which are provided in Appendix A for reference. As outlined in BLM guidance manual 8431-1 (BLM 1986b), the Visual Contrast Rating considered form, line, color, texture, scale and space.

The contrast ratings were used to determine whether the EVC of Project facilities meets the established visual resource management objectives. In cases where the objectives were not met, the reasons why the objectives were not met were documented. The contrast ratings were also used to determine visual compatibility with the surrounding landscape, based on visual resource inventory information (e.g., visual sensitivity and distance zones from KOPs).

4.2 Helicopter Noise Study

This section summarizes the methods that were used to implement the Helicopter Noise Study, organized to address the study objectives identified above.

4.2.1 Identification of Noise Policies and Criteria

Prior to implementing the noise study, the following documents were reviewed to identify current Tulare County, BLM and NPS noise policies, standards and criteria:

- BLM Bakersfield Field Office Approved Resource Management Plan (BLM 2014);
- Tulare County General Plan 2030 Update (Tulare County 2012);
- Pertinent area plans, including the Three Rivers Community Plan (Tulare County 1980) and the draft Three Rivers Community Plan Update (Tulare 2009); and
- Sequoia & Kings Canyon General Management Plan (NPS 2012).

In addition, SCE consulted with the BLM, Tulare County, and the NPS to obtain more specific information regarding noise policies and criteria. Consultation activity related to the helicopter noise study is summarized in Table LAND 2-2.

4.2.2 Identification of Noise Sensitive Locations

As required in the LAND 2 – TSP, SCE consulted with the NPS to identify specific areas and/or sites that could be affected by helicopter noise. In addition, although not required in the TSP, SCE consulted with Tulare County and the BLM to identify specific locations that could be affected by helicopter noise. Neither Tulare County nor the BLM identified any noise sensitive locations. Conversely, during an in-person meeting conducted on April 4, 2018, the NPS identified two recreation sites located within the SNP that could be affected by helicopter noise. These two recreation sites are identified as follows:

- Foothill Visitor Center Picnic Area; and,
- Indian Head River Trailhead Parking Area.

According to the NPS, helicopter noise can be heard at the two recreation sites when the nearby Ash Mountain Heliport is used as a staging area/landing zone. The locations of the Foothill Visitor Center Picnic Area, Indian Head River Trailhead Parking Area, and the Ash Mountain Heliport are shown on Map LAND 2-2.

4.2.3 Identification of SCE Helicopter-Related Activities and Use

SCE operators were interviewed to obtain information about routine operation and maintenance activities involving helicopters, including information about: flight timing (e.g., season of use), flight duration; typical flight paths; and landing zones. This information was used to help identify areas within the SNP that could be affected by helicopter noise. It is important to note that SCE does not use helicopters to conduct routine operation and maintenance of the Kaweah Project. Therefore, the study described herein was timed to occur in conjunction with a non-routine repair project that required the use of a helicopter.

4.2.4 Noise Assessment

The helicopter noise assessment was conducted by taking noise level measurements at the two noise sensitive locations identified in consultation with the NPS. Noise level measurements were conducted on Wednesday, September 26, 2018, and timed to occur on a day when SCE would be using helicopters and landing at the Ash Mountain Heliport. The noise assessment was conducted by WJV Acoustics, Inc. (WJVA). The methods used for the noise assessment, as documented in a letter report provided by WJVA, are summarized below.

Helicopter Operations

On the day the noise assessment was conducted, SCE used a Bell 205 helicopter to transport pipes from a staging area located approximately 500 feet east of Highway 198 to the Kaweah No. 3 Forebay (refer to Map LAND 2-2). The helicopter was initially staged at the Ash Mountain Heliport, which is located approximately 900 feet west of Highway 198. Helicopter activities commenced at approximately 9:00 a.m., at which time the helicopter flew from the Ash Mountain Heliport to the staging area where a pipe section was connected to a load chain, then flown to the forebay where it was unloaded. After the pipe section was unloaded, the helicopter returned to the staging area for another pipe section. This process continued for approximately 2.5 hours, ending at approximately 11:25 a.m. During this time period, SCE conducted a total of 18 round trip flights between the staging area and the forebay plus three flights to and from the Ash Mountain Heliport to refuel the helicopter.

Measurement Equipment

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzers equipped with a B&K Type 4176 1/2" microphones. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meters were calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphones were mounted on tripods at 5 feet above the ground.

Timing and Duration

The noise level measurements were taken at both sites simultaneously, before, during and after helicopter operations. Noise levels were continuously monitored at both sites between 7:00 a.m. and 1:00 p.m. Helicopter operations began at about 9:00 a.m. and concluded about 2.5 hours later, at 11:25 am. Accordingly, about two hours of noise level measurements were collected prior to the commencement of helicopter operations and 1.5 hours of noise level measurements after the conclusion of helicopter operations. The noise level meters were programmed to measure time-synced noise levels in 1-hour intervals.

WJVA staff also conducted noise measurements of individual events (referred to as single event measurements) from both noise measurement sites. A total of 15 single event measurements were taken at the Indian Head River Trailhead Parking Area, consisting of 8 arrivals and 7 departures. A total of 14 single event measurements were taken at the Foothill Visitor Center Picnic Area, consisting of 8 arrivals and 6 departures. This information was used to calculate the L_{dn}, described below.

Metrics

The continuous measurements conducted at the two locations were quantified in terms of the following metrics:

- L_{eq} – energy average;
- L_{max} – maximum noise level; and
- L_{dn} – day-night average.

The L_{dn} is the day/night weighted average for a 24-hour period and is commonly used to describe daily noise exposures for transportation sources, including helicopter noise exposure. The L_{dn} metric is calculated using the averaged noise levels obtained during the single event measurements. The L_{dn} metric is commonly used for planning purposes and can be used in the future, if needed, to calculate noise exposure based on a specific number of flights.

The calculated L_{dn} aircraft noise exposure provided in this study is based on the total number of helicopter operations that occurred on September 26, 2018 (i.e., during the study). The L_{dn} calculation discussed in the results section of this report includes a total of 19 trips, accounting for one additional helicopter trip that SCE completed after sound monitoring had concluded, and the 3 refueling trips to and from the Ash Mountain Heliport.

4.3 Kaweah No. 3 Forebay Spill Study

Two spillway channels are associated with the Kaweah No. 3 Forebay, referred to herein as the west spillway channel and the east spillway channel (refer to Maps LAND 2-2 and LAND 2-3). As explained later in this report, the west spillway channel is only used under specific circumstances. Therefore, the east spillway channel was used to conduct the spill study. The methods used to conduct the spill study are described in the following.

4.3.1 Compilation of Information about Spill Events

SCE operators were interviewed on April 26, 2018, to obtain information about the circumstances under which a spill from the Kaweah No. 3 Forebay occurs. SCE operators provided details from 2016 and 2017, including the number of events, duration, and reason for spills.

4.3.2 Identification of Noise and Visually Sensitive Locations

As required in the LAND 2 – TSP, SCE consulted with the NPS on April 4, 2018, to identify specific areas and/or sites where spill noise and/or visual conditions associated with the spill is a concern. The NPS identified the Foothill Visitor Center Picnic Area and the Indian Head River Trailhead Parking Area as sites where noise and/or visual conditions associated with spill events could be a concern. These are the same two sites that the NPS identified as noise sensitive locations for the helicopter noise study. As shown on Map LAND 2-3, the Foothill Visitor Center Picnic Area (identified as KOP 4) is located upstream of the Kaweah No. 3 Forebay spillway channels, and the Indian Head River Trailhead Parking Area (identified as KOP 2) is located downstream of the channels.

4.3.3 Noise Assessment

The noise assessment was conducted by taking noise level measurements at the two noise sensitive locations identified in consultation with the NPS. Noise level measurements were conducted on May 31, 2018, and timed to occur on a day when SCE could provide a controlled spill event in the 80-90 cubic feet per second (cfs) range, which represents a maximum spill event scenario. The noise assessment was conducted by WJVA. The methods used for the noise assessment, as documented in a letter report provided by WJVA, are summarized below.

Measuring Equipment

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzers equipped with a B&K Type 4176 1/2" microphones. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meters were calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphones were mounted on tripods at 5 feet above the ground.

Timing and Duration

SCE provided a controlled spill for a one-hour period. The spill event lasted a total of 1.5 hours, including a 15-minute ramp up and a 15-minute ramp down. The spill event started at approximately 10:25 a.m. and concluded at approximately 11:55 a.m. Accounting for the ramp up and ramp down, a full flow rate spill occurred between the hours of approximately 10:40 a.m. and 11:40 a.m.

Noise levels were measured continuously at the two locations between the hours of 8:40 a.m. and 12:30 p.m. In order to obtain a statistically valid sample size, and to avoid loud single events unrelated to the spill event that would dominate or contaminate noise samples, noise level measurements were broken into time synced 5-minute intervals.

Metrics

The continuous measurements conducted at the two locations were quantified in terms of the following metrics:

- L_{eq} – energy average;
- L_{max} – maximum noise level; and,
- L_{90} – defined below

The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each 5-minute sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources.

Because the noise produced by flowing water remains relatively constant over time, the L_{90} metric can be used to assess the noise level associated with flow by separating out noise levels associated with individual events such as vehicles, aircraft, and human voices. While all three of the above-described metrics are provided in the results section, the L_{90} descriptor is considered the parameter most representative of noise levels associated with a spill event and therefore the focus of the spill study.

4.3.4 Photo Documentation of Spill Events

As required in the LAND 2 – TSP, photographs were taken concurrent with the noise study to document visual conditions under spill and no-spill conditions. The Kaweah No. 3 Forebay Spillway Channel (east channel) was photographed before and during the spill event, as viewed from the Foothill Visitor Center Picnic Area (KOP 4). The east spillway channel is not visible from the Indian Head River Trailhead Parking Area (KOP 2). Therefore, photographs were not taken from this location.

5 STUDY RESULTS

This section describes the study results, organized by study element.

5.1 Visual Resource Study

5.1.1 Visual Resource Management Direction

The following summarizes direction contained in the relevant resource agency management plans pertaining to visual resource management in the vicinity of the Kaweah Project.

BLM Bakersfield Field Office Approved Resource Management Plan

The BLM's Bakersfield Office Approved Resource Management Plan (RMP) (BLM 2014) provides broad-scale direction for the future management of BLM-administered public lands and resources located in an eight county region of southern-central California, including the Kaweah Project area. The Visual Resources section of the RMP contains the following goal, objective, and direction regarding administrative actions that pertain to the Project area:

- **Goal VR-G-1.** Public lands demonstrate a range of visual resource values that allow for development and provide opportunities for scenic appreciation.
- **Objective VR-O-1.** Utilize visual resource management classes for all public lands within the decision area to preserve and enhance scenic quality for present and future generations.
- **Administrative Actions.** For all surface-disturbing projects or activities, regardless of size of potential impact, incorporate visual design considerations, consistent with the Visual Resource Contrast Rating Manual H-8431-1, to meet VRM class objectives of the area.

Most of the Kaweah Project facilities are located on private land, which is surrounded by public land managed by the BLM. Most of the BLM land surrounding the Project facilities is designated Class II. The exceptions are the Kaweah No. 2 Diversion Dam and the Kaweah No. 3 Powerhouse, which are located in an area with a Class III VRM designation. The visual management objectives associated with these two BLM classifications are summarized below.

- **Class II Objective**. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **Class III Objective**. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Tulare County General Plan 2030 Update and Pertinent Area Plans

The Tulare County General Plan (Tulare County 2012) includes two sections containing visual resource direction relevant the Project: Watercourses and Gateway to the Sequoias. In the Watercourses section, the plan specifies the importance of, "maintaining the rural and natural character of landscape viewed from trails and watercourses used for public recreation". In the Gateways to the Sequoias section, which includes Highway 198, the plan states the importance of, "protecting primary viewsheds from development" (Tulare County 2012).

The Project is located in an area governed by the Three Rivers Community Plan (Tulare County 1980). The current plan does not contain clear direction regarding the management of visual resources. However, the plan is currently being updated, and a draft of the updated plan was released in 2009. The draft updated plan contains an objective "to preserve visual resources in Three Rivers, including viewsheds and ridgelines" (Tulare County 2009). In addition, the draft plan highlights the importance of maintaining the visual quality of the view along Highway 198 and designing structures and developments with an emphasis on preserving the scenic panorama.

Sequoia & Kings Canyon General Management Plan

The Sequoia & Kings Canyon (SKC) General Management Plan (NPS 2012) does not contain specific visual resource management objectives that pertain to the Project. In general, the plan emphasizes protection of natural resources and scenic river corridors.

5.1.2 Visual Resource Maps and Tables

The Project facilities were mapped relative to the BLM's Visual Resource Management classifications using GIS data provided by the BLM on July 11, 2018. The resulting map is provided herein as Map LAND 2-4. Note that most of the Project facilities are located on private land. Therefore, Map LAND 2-4 is a generalized depiction of the BLM classifications. Table LAND 2-1 provides similar information in a tabular format, and identifies which facilities are located on private or BLM land.

5.1.3 EVC Assessment

According to SCE, two Project facilities were constructed and/or substantially modified since 1989. Specifically, a maintenance garage was erected at the Kaweah No. 1 Powerhouse Campus in 2012 and the Kaweah No. 2 Diversion Dam intake structure was modified in 2012. The EVC assessment focused on these two facilities.

Kaweah No. 1 Powerhouse Campus Maintenance Building

The Kaweah No. 1 Powerhouse Campus is located on the north side of Highway 198 in the community of Hammond, approximately two miles from the SNP boundary (refer to Map LAND 2-1). The campus consists of an assemblage of buildings that serve as the administrative and maintenance center for the Kaweah Project. The primary buildings include the Supervisor's Office (K1 office), the K1 Operator's Office, a workshop, and a large modern prefabricated metal building (referred to herein as a maintenance building). The general configuration of the campus is shown on the inset included on Map LAND 2-3.

All of the primary buildings located within the campus boundaries are single-story structures, painted white or off-white, with natural color, low-angle roofs. Natural vegetation is dispersed throughout the campus, partially screening some of the structures from view. However, since the vegetation is generally sparse in this part of the Kaweah River canyon, and because the campus is located adjacent to Highway 198, the entire campus is generally visible from the highway.

With the exception of the maintenance building, all of the buildings at the Kaweah No. 1 Powerhouse Campus are historic era buildings, with the machine and carpenter shops built in 1927 and the Supervisor's Office and communication building built in about 1950. Since these buildings were present in 1989, they were assessed as part of the previous relicensing effort. (Note that the K1 Office was modified in 1990, but the overall size, color and configuration of the building was not substantially changed since the 1989 assessment. Therefore, the K1 Office was not assessed as part of the current study.) The maintenance building was constructed in 2012, replacing a cottage and garage that previously occupied that space. Photo B-1 (Appendix B) shows the space after the cottage and garage were removed, but before the maintenance building was constructed. Photo B-2 (Appendix B) shows the maintenance building that was assessed as part of this study.

As shown in Photo B-2, the maintenance building is a modern, prefabricated building measuring approximately 50 feet wide by 100 feet long by 20 feet high. The exterior is clad with metal siding and has a low-angle metal roof, all painted white, or off-white to match the other buildings on the campus. Access to the building is via white entrance doors and large white garage doors located on each side of the building. The building is surrounded by black pavement. The building is set back from Highway 198 approximately 50 feet. No vegetation is present between the building and the highway. Therefore, the building is readily visible from Highway 198.

The building was assessed on May 9, 2018 from KOP 1 using the BLMs VRM rating system. Photo B-3 (Appendix B) shows the view of the building from KOP 1. A visual contrast rating worksheet is provided in Appendix A. The assessment results are summarized in Tables LAND 2-3 and LAND 2-4, and discussed in the following.

Scenic Quality, Visual Sensitivity, and Distance Zones

Based on the information developed by KEA in 1989, the Kaweah No. 1 Powerhouse Campus spans Class A and B landscapes, with the area immediately adjacent to the Kaweah River designated as Class A and the surrounding hillsides designated as Class B. The entire Kaweah No. 1 Powerhouse Campus, including the new maintenance building, is located adjacent to Highway 198. This highway is the primary travel route through the Kaweah River canyon and receives heavy use by local residents and recreation users travelling to/from the SNP. Accordingly, Highway 198 is considered to have a high visual sensitivity. The new maintenance building can be seen for approximately 565 feet (0.10 mile) when driving in either direction along Highway 198. Therefore, it is visible in a viewer's foreground from Highway 198.

EVC and Visual Contrast

Based on the 1989 KEA assessment, the overall contrast rating of the Kaweah No. 1 Powerhouse Campus is moderate. However, based on the current study, the maintenance building was given a strong contrast rating because: it is located immediately adjacent to Highway 198, within the foreground; it is relatively large and industrial in form compared to the other buildings on the campus; and it is not screened by vegetation. Furthermore, the white reflective exterior stands out against the otherwise more natural and matted greens, browns, and tans of the surrounding landscape and the angular dimensions of the building create strong vertical lines relative to the adjacent rolling hills and low vegetation.

Conformance with Management Objectives and Compatibility Assessment

The entire Kaweah No. 1 Powerhouse Campus, including the maintenance building, is located on private land owned by SCE. Although the maintenance building was assessed using the BLM VRM for consistency purposes, the BLM visual resource objectives are not applicable to private land.

Private land is managed by Tulare County. Although the Tulare County General Plan does not contain specific visual resource management objectives that pertain to the Project facilities, it stresses the importance of protecting the primary viewsheds along Highway 198 from development (Tulare County 2012). The maintenance building is not considered a new development because it was erected within the Kaweah No. 1 Powerhouse Campus, in an area that was previously occupied by other, older buildings.

Regardless, based on the current assessment, the maintenance building is generally not compatible with the surrounding landscape due mainly to its size, color, and utilitarian form. Vegetative screening placed between the building and the highway and natural-colored flat paint would help reduce visual contrast to a moderate level.

Kaweah No. 2 Diversion Dam Intake Structure

The Kaweah No. 2 Diversion Dam is located on the Kaweah River, approximately one-mile upstream of the confluence of the East Fork Kaweah River (Map LAND 2-1). The diversion is comprised of a seven-foot tall granite masonry overflow gravity dam with a crest length of 161 feet. Water impounded by the dam is diverted into the Kaweah No. 2 Flowline at an intake structure located on the northwest end of the dam (i.e., river right, looking downstream). The Kaweah No. 2 Diversion Dam and original intake structure was constructed in 1905. The intake structure was completely reconstructed in 1938 and reconfigured again in 2012. Photo B-4 (Appendix B) shows the Kaweah No. 2 Diversion Dam intake prior to 2012. Photo B-5 (Appendix B) shows the Kaweah No. 2 Diversion Dam after the 2012 renovations were completed.

The reconfigured intake structure is approximately 15 feet long (longest side) by about 13 feet wide and is constructed of board-formed concrete. The top of the intake structure is situated at an elevation of 1,366 feet above mean sea level (msl). The dam crest elevation is situated at about 1,360 feet above msl, so the intake structure is about 6 feet higher than the dam. The intake is protected with a metal grate (referred to as a trash rack) with automated grid rakes that are used to capture and remove debris before it enters the intake. As indicated in Photos 4 and 5 (Appendix B), the new structure is slightly larger than the pre-2012 structure and the intake entrance is oriented 90 degrees from its previous position. Metal cyclone fencing borders a portion of the structure to limit public access to the facility from the shoreline. Grey colored metal handrails are also present for worker safety.

The new intake structure was assessed on May 10, 2018 from KOP 3 using the BLMs VRM rating system. Photo B-6 (Appendix B) shows the dam and intake structure as viewed from KOP 3, looking downstream. A visual contrast rating worksheet is provided in Appendix B. The assessment results are summarized in Tables LAND 2-3 and LAND 2-4, and discussed in the following section.

Scenic Quality, Visual Sensitivity, and Distance Zones

Based on the information developed by KEA in 1989, the Kaweah No. 2 Diversion Dam and intake structure are located in Class A landscape due to the location of these facilities on the Kaweah River. The dam and intake structure are located adjacent to Highway 198 and can be seen from areas within the SNP, so viewer sensitivity is considered high. The dam and intake structure are situated below the elevation of the highway and the intake structure is mostly obscured by riparian vegetation. Nevertheless, these facilities can be seen intermittently in the middleground from Highway 198 when driving west and in the foreground from KOP 3.

EVC and Visual Contrasts

The Kaweah No. 2 Diversion Dam intake structure that existed in 1989 was not given a contrast rating by KEA because it was identified as a structure not easily visible from public viewing locations. The intake structure that is now present was included in the current analysis because it is larger than the original intake structure and because it was determined to be visible from a turnout on Highway 198 (KOP 3). The diversion dam has not been modified since 1989 so it was not assessed as part of this study.

Based on the current assessment, the new intake structure was given a contrast rating of “none” to “weak”, primarily because the structure is relatively small compared to the surrounding landscape and mostly obscured by vegetation. Furthermore, the intake structure is situated adjacent to granite boulders, some of which are larger than the intake structure and the same color as the concrete that was used to build the structure. The proximity of the granite boulders reduces the contrast of the structure relative to the adjacent surroundings. The grid rakes covering the intake trash were given a slightly higher visual contrast rating because the blue color of the top of the grid rake is noticeable relative to the rest of the structure.

Conformance with Management Objectives and Compatibility Assessment

The Kaweah No. 2 Diversion Dam and intake structure are located on the Kaweah River, near the SNP boundary, on land owned by SCE. The dam and intake structure are visible from locations within the SNP, including from the KOP that was established at the Indian Head River Trailhead Parking Area. The SKC General Management Plan does not contain specific visual resource management objectives that pertain to the Project, but the plan emphasizes protection of natural resources and scenic river corridors. The diversion dam and intake generally blend with the surrounding landscape as viewed from the SNP and, as such, meet the broad objectives contained in the SKC General Management Plan.

Although the Kaweah No. 2 Diversion Dam and intake structure are not located on BLM land, the BLM visual management objective for the area surrounding these structures is Class III. This objective allows for moderate changes to the characteristic landscape. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The Kaweah No. 2 Diversion Dam and intake structure do not strongly contrast with the surrounding landscape for the reasons discussed above. Furthermore, they do not dominate the view of the casual observer. Therefore, these structures conform to the BLM's Class III visual management objective.

Based on the current assessment, the Kaweah No. 2 Diversion Dam intake structure is generally compatible with the surrounding landscape for the reasons explained above. Repainting the upper grid rake bar a color other than blue (e.g., a natural color, or gray to match the concrete structure) would help reduce the contrast of this feature relative to its surroundings.

5.2 Helicopter Noise Study

This section describes the results of the helicopter noise study.

5.2.1 Noise Policies and Criteria

The following noise policies and standards were identified through consultation with the BLM, the NPS and Tulare County.

BLM

The BLM Bakersfield Field Office Approved Resource Management Plan (BLM 2014) does not contain specific decibel (dB) level criteria for noise. In addition, a specific noise criteria was not identified in consultation with BLM.

NPS

The SKC General Management Plan does not contain specific noise level criteria. However, the Projection of Natural Sounds section of the plan includes the following general discussion related to noise in the park: "Protection of Natural Sounds Opportunities in the parks are preserved for visitors to enjoy natural sounds, including quiet. Visitors to the parks often seek escape from the sights and sounds of urban life. As visitors move away from developed areas and park features, they are more able to enjoy the natural sounds of water, wind, and wildlife. The parks continue to limit low-flying aircraft to avoid disturbing the natural setting. Additionally, all visitors are reminded that their actions can disturb others. Sounds caused by visitors can destroy the tranquility that other visitors often seek."

Tulare County

The Tulare County General Plan establishes noise level criteria in terms of the Day-Night Average Level (L_{dn}) metric (Tulare County 2012). The L_{dn} is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m. to 7:00 a.m.). The L_{dn} represents cumulative exposure to noise over an extended period of time and is

calculated based on annual average conditions. The draft Three Rivers Community Plan refers to the standards identified the Tulare County General Plan (Tulare County 2009).

The Tulare County General Plan policy H.S-8.8 (Adjacent Uses) states, "The County shall not permit development of new industrial, commercial, or otherwise noise-generating land uses if resulting noise levels will exceed 60 dB L_{dn} at the boundary of areas designated and zoned for residential or otherwise noise-sensitive uses" (Tulare County 2012).

The standards contained in the Tulare County General Plan and the draft Three Rivers Community Plan were used as a basis for discussion in this report. However, it is important to note that the above described noise standards generally pertain to privately-owned property within the designated areas.

5.2.2 Noise Sensitive Locations

Two noise sensitive locations were identified in consultation with NPS: the Foothill Visitor Center Picnic Area and the Indian Head River Trailhead Parking Area. Both of these sites are located in the vicinity of the Ash Mountain Heliport, which is located roughly 1,000 feet from the Indian Head River Trailhead Parking Area and 0.75 mile from the Foothill Visitor Center Picnic Area (refer to Map LAND 2-2).

5.2.3 SCE Helicopter-Related Activities and Use

Operation and maintenance of the components of the Kaweah Project that are under FERC jurisdiction does not require the routine use of helicopters. Therefore, any helicopter noise that may be heard at the Indian Head River Trailhead Parking Area and the Foothill Visitor Center Picnic Area is not associated with routine operation and maintenance of the Project. The maintenance activities that occurred at the Kaweah No. 3 Forebay and documented as part of this study do not occur on a regular basis and are therefore not considered routine operation and maintenance.

SCE occasionally uses the Ash Mountain Heliport when conducting operation and maintenance activities at several non-Project lakes located in the SNP (referred to herein as the Mineral King Lakes). Specifically, SCE flies from the Ash Mountain Heliport twice a year, once in September and once in October, to conduct a dam safety inspection at the Mineral King Lakes, and to operate (open or close) the gate valves. SCE typically opens the gate valves after Labor Day and then closes the valves six weeks later. The entire process for one visit typically includes an eight-hour day starting early in the day to avoid the late afternoon heat, with one flight in and one flight out of the Ash Mountain Heliport. Additional personnel and/or equipment is sometimes needed if additional maintenance is necessary. In these cases, multiple flights in and out of the Ash Mountain Heliport may occur during the same day. The flight path between the Ash Mountain Heliport and the Mineral King Lakes does not pass over the Indian Head River Trailhead Parking Area or the Foothill Visitor Center Picnic Area.

5.2.4 Noise Assessment

The helicopter noise study results are summarized below, by site. Note that all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

Indian Head River Trailhead Parking Area

Prior to the commencement of helicopter operations, noise levels at the Indian Head River Trailhead Parking Area were generally dominated by noise associated with the flow of the nearby Kaweah River; traffic noise associated with vehicles on Highway 198; and human voices and vehicle activities within the parking area and nearby trail. Conversely, helicopter noise dominated during the 2.5 hours of helicopter operations.

The continuous noise measurements collected at the Indian Head River Trailhead Parking Area were quantified in terms of the Leq (energy average) and Lmax (maximum) noise level metrics. The hourly Leq and hourly Lmax noise level descriptors for the period of time with and without helicopter operations are summarized in Table LAND 2-5a for comparison. Both the average and the range (in parentheses) are provided. Note that these noise levels do not consider the 11:00 a.m. to 12:00 p.m. hour as only approximately 25 minutes during that hour included helicopter operations. Figure LAND 2-1 visually depicts the fluctuation of these two noise level descriptors before, during, and after helicopter operations, by one-hour sample intervals.

As indicated on Table LAND 2-5a, helicopter operations associated with the Kaweah No. 3 Forebay maintenance activities resulted in an increase of approximately 15.4 dB in the hourly average (L_{eq}) and an increase of approximately 13 dB in the hourly maximum (L_{max}) compared to ambient noise levels measured at the Indian Head River Trailhead Parking Area.

With respect to overall helicopter noise exposure at the Indian Head River Trailhead Parking Area (as defined by the L_{dn} metric), WJVA calculated the helicopter noise exposure to be 58.7 dB L_{dn} for all helicopter operations occurring on September 26, 2018. This noise exposure applies to the total number of helicopter operations, including arrivals and departures between the staging area and the forebay and fueling flights to and from the Ash Mountain Heliport. Accordingly, the L_{dn} noise exposure at the Indian Head River Trailhead Parking Area was below the 60 dB L_{dn} noise standard provided in the Tulare County General Plan.

Foothill Visitor Center Picnic Area

Prior to the commencement of helicopter operations, noise levels at the Foothill Visitor Center Picnic Area were generally dominated by traffic noise associated with vehicles on Highway 198 as well as human voices and vehicle activities at the parking area. Conversely, helicopter noise dominated during the 2.5 hours of helicopter operations.

The continuous noise level measurements collected at the Foothill Visitor Center Picnic Area were quantified in terms of the L_{eq} and L_{max} noise level metrics. The hourly L_{eq} and hourly L_{max} noise level descriptors for the period of time with and without helicopter operations are summarized in Table LAND 2-5b for comparison. Both the average and the range (in parentheses) are provided. Note that these noise levels do not consider the 11:00 a.m. to 12:00 p.m. hour as only approximately 25 minutes during that hour included helicopter operations. Figure LAND 2-2 visually depicts the fluctuation of these two noise level descriptors before, during, and after helicopter operations, by one-hour sample intervals.

As indicated on Table LAND 2-5b, helicopter operations associated with Kaweah No. 3 Forebay maintenance activities resulted in an increase of 9.5 dB hourly average (L_{eq}) and an increase of approximately 4.8 dB hourly maximum (L_{max}) when compared to ambient noise levels at the Foothill Visitor Center Picnic Area.

With respect to overall helicopter noise exposure at the Foothill Visitor Center Picnic Area (as defined by the L_{dn} metric), WJVA calculated the helicopter noise exposure to be 49.1 dB L_{dn} for all helicopter operations occurring on September 26, 2018. This noise exposure applies to the total number of helicopter operations, including arrivals and departures between the staging area and the forebay and fueling flights to and from the Ash Mountain Heliport. Accordingly, the L_{dn} noise exposure at the Foothill Visitor Center Picnic Area was below the 60 dB L_{dn} noise standard provided in the Tulare County General Plan.

5.3 Kaweah No. 3 Forebay Spill Study

This section summarizes the results of the Kaweah No. 3 Forebay Spill Study.

5.3.1 Spill Event Circumstances

Two spillway channels are associated with the Kaweah No. 3 Forebay, an east spillway channel and a west spillway channel (refer to Map LAND 2-2). According to SCE operators, when water builds up in the Kaweah No. 3 Forebay and cannot be run through to the Kaweah No. 3 Powerhouse, water is released from the forebay to the Kaweah River via the eastern-most spillway channel. The west spillway channel is not utilized during these spill events; its purpose is to fully drain the forebay when necessary to complete maintenance or clear sediment. A release into the west spillway channel typically occurs at a frequency of less than once every ten years, and during a release at that spillway it is the only spillway used.

Spills from the Kaweah No. 3 Forebay are typically caused by an issue with the transmission line down canyon of the area. The transmission line that leaves the Kaweah Project consists of one main line, and the Kaweah No. 3 Forebay is located at the upper end of that transmission line. Disturbances along the line can be caused by minor events such as a bird flying over and colliding with the line, or more major events such as car collisions or wildfires along the transmission line.

Another potential cause of a spill event is for one or both of the two generator units (the turbine and generator combined) located at the Kaweah No. 3 Forebay to trip offline. A common reason a unit will trip offline is due to an equipment malfunction. If both units trip offline simultaneously, the resulting maximum spill from the Kaweah No. 3 Forebay is 92 cfs.

A review of SCE's records indicates that a total of nine spill events occurred during 2016 and 2017. All of the events were due to a transmission line disturbance with the duration of each spill event lasting approximately 2 to 3 hours. The maximum spill of 92 cfs was not reached during any of these events.

5.3.2 Noise and Visual Sensitive Locations

Two noise/visual sensitive locations were identified in consultation with NPS: the Foothill Visitor Center Picnic Area and the Indian Head River Trailhead Parking Area (refer to Map LAND 2-2). The Foothill Visitor Center Picnic Area is located upstream of the Kaweah No. 3 Forebay spillway channels, and the Indian Head River Trailhead Parking Area is located downstream of the channels.

5.3.3 Noise Assessment

The noise study results are summarized below, by site. Note that all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

Indian Head River Trailhead Parking Area

Spill activities were neither visible nor audible at the Indian Head River Trailhead Parking Area. Noise levels at the Indian Head River Trailhead Parking Area were generally dominated by noise associated with the flow of the Kaweah River. Other sources of noise observed during the measurement period including traffic noise associated with vehicles on Highway 198, as well as human voices and vehicle activities within the parking area and nearby trailhead.

The spill event began at approximately 10:25 a.m. and concluded at approximately 11:55 a.m. Noise level measurements were conducted before, during and after the spill event occurred. The average and range of the hourly L_{eq} (energy average), hourly L_{max} (maximum noise level), and L_{90} descriptors for the period of time with and without a spill occurring are summarized in Table LAND 2-6a. Both the average and the range (in parentheses) are provided. All noise levels are described as A-weighted decibels.

Figures LAND 2-3 and LAND 2-4 visually depict the fluctuation of these three noise level descriptors before, during, and after the spill event. Figure LAND 2-3 provides the range of noise levels, broken into 5-minute interval sample periods. Figure LAND 2-4 provides only the L_{90} statistical descriptor, which represents the actual noise levels associated with the flow of water in the Kaweah River.

As indicated on Table LAND 2-6a, residual background noise levels, as defined by the L_{90} statistical descriptor were 0.4 dB higher during the period the spill event was occurring. This is likely due to the temporal increase in flow in the Kaweah River during the spill event. Changes in noise levels less than 1 dB are below the general threshold of perception by the human ear.

Foothill Visitor Center Picnic Area

Spill activities were both visible and audible at the Foothill Visitor Center Picnic Area. Noise levels at the Foothill Visitor Center Picnic Area were generally dominated by noise associated vehicle traffic on Highway 198 and the nearby parking area. Other sources of noise observed during the measurement period included aircraft and human voices.

The average and range of the hourly L_{eq} (energy average), hourly L_{max} (maximum noise level), and L_{90} noise level measurements were conducted before, during and after the spill event occurred. Descriptors for the period of time with and without a spill occurring are summarized in Table LAND 2-6b. Both the average and the range (in parentheses) are provided. All noise levels are described as A-weighted decibels.

Figures LAND 2-5 and LAND 2-6 visually depict the fluctuation of these three noise level descriptors before, during, and after the spill event. Figure LAND 2-5 provides the range of noise levels, broken into 5-minute interval sample periods. Figure LAND 2-6 provides only the L_{90} statistical descriptor, which represents the actual noise levels associated with the spill event during the period the spill event was occurring.

As indicated on Table LAND 2-6b, residual background noise levels, as defined by the L_{90} statistical descriptor were 4.8 dB higher during the period the spill event was occurring. This change is generally perceivable by the human ear. However, noise associated with the spill event only increased overall noise levels (as defined by the L_{eq}) by approximately 2.5 dB during the period the spill event was occurring.

5.3.4 Visual Assessment

The Kaweah No. 3 Forebay Spillway Channel (east channel) was photographed before and during the spill event, as viewed from the Foothill Visitor Center Picnic Area (KOP 4). The east spillway channel is not visible from the Indian Head River Trailhead Parking Area (KOP 2). Therefore, photographs were not taken from this location.

Photographs documenting the visual conditions during the maximum spill event that occurred on May 31, 2018, are presented in Appendix B. Photo B-7 shows conditions without a spill and Photos 8 and 9 show conditions during a maximum spill event at a flow of approximately 92 cfs. SCE estimates that any spill greater than approximately 4 cfs is generally visible from public viewing areas.

As documented in the photographs, the spillway channel is not discernable from the Foothill Visitor Center Picnic Area under the no-spill condition, mainly due to the viewing angle, and the long viewing distance between the visitor center and the spillway channel. Conversely, the spillway channel is visible from the Foothill Visitor Center Picnic Area under the maximum spill scenario due to the contrast between the white color of the aerated water relative to the adjacent vegetation and the linear nature of the spillway channel. However, overall the contrast rating is considered weak due to the long viewing distance between the spillway channel and the KOP, and because the vegetation along the channel disrupts the linear nature of the channel, thereby reducing overall visual contrast. In general, with a flow of 92 cfs, the channel appears as a natural waterfall. Lower flows would be less discernable.

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TABLES

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Table LAND 2-1. Project Facilities, Jurisdiction, and BLM VRM Classes[1]

Facility Name	Jurisdiction	BLM VRM Classification[1]
Diversion Dams and Pools		
Kaweah No. 1 Diversion Dam and Pool (East Fork Kaweah River)	SCE	II
Kaweah No. 2 Diversion Dam and Pool (Kaweah River)	SCE*	III
Flowlines		
Kaweah No. 1 Flowline	BLM/Private/SCE	II
Kaweah No. 2 Flowline	BLM/Private/SCE	II / III
Kaweah No. 3 Flowline	BLM	II
Forebays		
Kaweah No. 1 Forebay Tank and Spillway Channel	BLM/Private/SCE	II
Kaweah No. 2 Forebay and Spillway Channels	Private/SCE	II
Kaweah No. 3 Forebay and Spillway Channel	BLM/NPS	II
Penstocks		
Kaweah No. 1 Penstock	BLM/SCE	II
Kaweah No. 2 Penstock	SCE	II
Kaweah No. 3 Penstock	BLM/SCE	II / III
Powerhouses and Switchyards		
Kaweah No. 1 Powerhouse and Switchyard	SCE	II
Kaweah No. 2 Powerhouse and Switchyard	SCE	II
Kaweah No. 3 Powerhouse and Switchyard	SCE*	III
Transmission Lines and Transmission Tap Lines		
Kaweah No. 3 Powerhouse to Three Rivers Substation Transmission Line	NPS/Private/SCE*	II / III
Kaweah No. 1 Powerhouse Transmission Tap Line	SCE	II
Kaweah No. 2 Powerhouse Transmission Tap Line	Private/SCE	II

Facility Name	Jurisdiction	BLM VRM Classification[1]
Power Lines		
Kaweah No. 1 Diversion Intake House Solar Panel to Kaweah No. 1 Diversion Dam Power Line (solar)	Private/SCE	II
Kaweah No. 1 Switchyard to Kaweah No. 1 Maintenance Building Power Line	SCE	II
Kaweah No. 1 Switchyard to Kaweah No. 1 Office Building Power Line	SCE	II
Kaweah No. 1 Switchyard to Kaweah No. 1 Operator's Office ~~Old Machine Shop~~ Power Line	SCE	II
Kaweah No. 1 Switchyard to K1 Workshop Power Line	SCE	II
Kaweah No. 1 Office Building to K1 Forebay Tank Power Line	BLM/SCE	II
Kaweah No. 1 Powerhouse Campus Alternate Power Line	Private/SCE	II
Kaweah No. 2 Diversion/Flowline Gage and Kaweah No. 3 Powerhouse Alternate Power Line	NPS/SCE	III
Kaweah No. 2 Powerhouse Alternate Power Line	SCE	III
Kaweah No. 2 Powerhouse to Kaweah No. 2 Forebay Power Line	SCE	II
Kaweah No. 3 Powerhouse to Kaweah No. 2 Diversion Power Line	SCE*	III
Kaweah No. 3 Powerhouse to Kaweah No. 2 Flowline Gage Power Line	SCE*	III
Kaweah No. 3 Powerhouse to Kaweah No. 3 Forebay Power Line	BLM/SCE	II / III
Communication Lines		
Kaweah No. 1 Powerhouse to Kaweah No. 1 Office Building Fiber Communication Line	SCE	II
Kaweah No. 1 Office Building to Kaweah No. 1 Forebay Tank Fiber Communication Line	BLM/SCE	II
Kaweah No. 2 Diversion Dam to Kaweah No. 3 Powerhouse Fiber Communication Line	SCE	III
Kaweah No. 2 Powerhouse to Kaweah No. 2 Forebay Fiber Communication Line	SCE	II
Kaweah No. 3 Powerhouse to Kaweah No. 3 Forebay Fiber Communication Line	BLM/SCE	II / III
Kaweah No. 3 Forebay to Kaweah No. 3 Forebay Inlet Fiber Communication Line	BLM	II

Facility Name	Jurisdiction	BLM VRM Classification[1]
Stream Gages		
East Fork Kaweah River Conduit 1 at Power Plant near Hammond CA (USGS Gage No. 11208800) (SCE Gage No. 200a)	SCE	II
East Fork Kaweah River near Three Rivers CA (USGS Gage No. 11208730) (SCE Gage No. 201)	Private	II
Kaweah No. 1 Minimum Instream Flow Release (SCE Gage No. 201a)	SCE	II
East Fork Kaweah River Conduit 1 near Three Rivers CA (SCE Gage No. 202)	Private	II
Kaweah River below Conduit No. 2 near Hammond CA (USGS Gage No. 11208600) (SCE Gage No. 203)	SCE	III
Kaweah River Conduit No. 2 near Hammond CA (SCE Gage No. 204a)	SCE	III
Kaweah River Conduit No. 2 at Power Plant near Hammond CA (USGS Gage No. 11208818) (SCE Gage No. 205a)	SCE	II
Middle Fork Kaweah River Conduit No. 3 at Power Plant near Hammond CA (USGS Gage No. 11208565) (SCE Gage No. 206a)	SCE	III
Project Access Roads		
Kaweah No. 1 Development		
Kaweah No. 1 Flowline Access Road – Bear Canyon	Private/SCE	II
Kaweah No. 1 Flowline Access Road – Grapevine	BLM	II
Kaweah No. 1 Flowline Access Road – Lumberyard	BLM	II
Kaweah No. 1 Flowline Access Road – Lumberyard (spur)	BLM	II
Kaweah No. 1 Flowline Access Road – Slick Rock	Private/SCE	II
Kaweah No. 1 Forebay Road	BLM	II
Kaweah No. 1 Intake Road	Private	II
Kaweah No. 1 Flowline Access Road – Lower Pine	BLM	II
Kaweah No. 1 Flowline Access Road – Lower Pine (spur)	BLM	II
Kaweah No. 1 Flowline Access Road – Summit	Private	II
Kaweah No. 1 Flowline Access Road – Unnamed	Private/SCE	II
Kaweah No. 1 Flowline Access Road – Upper Pine	BLM	II

Facility Name	Jurisdiction	BLM VRM Classification[1]
Kaweah No. 2 Development		
Kaweah No. 2 Flowline East Access Road	Private	II
Kaweah No. 2 Flowline Access Road – Open Siphon Grids	NPS/SCE	III
Kaweah No. 2 Flowline Access Road – Red Barn	Private	II
Kaweah No. 2 Intake Road	NPS/SCE*	III
Kaweah No. 2 Powerhouse Road	Private/SCE	II
Kaweah No. 2 Flowline Center Access Road	Private	II
Kaweah No. 2 Flowline Access Road – Canal 2 Brushout Grid	Private/SCE	II
Kaweah No. 2 Flowline Access Road – Canal 4 East	Private	II
Kaweah No. 2 Flowline Access Road – Canal 4 West	Private	II
Kaweah No. 2 Flowline Access Road – Canal 5	Private	II
Kaweah No. 2 Flowline Access Road – Canal 6 East	Private	II
Kaweah No. 2 Flowline Access Road – Canal 6 West	Private/SCE	II
Kaweah No. 2 Flowline Access Road – Flume 11	Private/SCE	II
Kaweah No. 2 Flowline Access Road – Flume 8	Private/SCE	II
Kaweah No. 2 Flowline West Access Road	Private/SCE	II
Kaweah No. 2 Forebay Road	Private/SCE	II
Kaweah No. 2 Penstock Road	SCE	II
Kaweah No. 3 Development		
Kaweah No. 3 Forebay Road	BLM/Private/SCE	II / III
Kaweah No. 3 Powerhouse Road	SCE	III

Facility Name	Jurisdiction	BLM VRM Classification[1]
Project Trails		
Kaweah No. 1 Development		
Kaweah No. 1 Flowline Access Trail – Unnamed	SCE	II
~~Kaweah No. 1 Flowline Access Trail – Grand Canyon~~		
~~Kaweah No. 1 Solar Panel Access Trail~~		
Kaweah No. 2 Development		
Kaweah No. 2 Flowline Access Trail – Canal 11	Private/SCE	II
Kaweah No. 2 Flowline Access Trail – Canal 13	SCE	II
Kaweah No. 2 Flowline Access Trail – Canal 15	Private	II
Kaweah No. 2 Flowline Access Trail – Canal 2	SCE	II
Kaweah No. 2 Flowline Access Trail – Canal 4 East	SCE	II
Kaweah No. 2 Flowline Access Trail – Canal 4 West	SCE	II
Kaweah No. 2 Flowline Access Trail – Canal 5	Private/SCE	II
Kaweah No. 2 Flowline Access Trail – Canal 6	SCE	II
Kaweah No. 2 Flowline Access Trail – Open Siphon	NPS/SCE	II / III
Kaweah No. 2 Flowline Access Trail – Wildlife Crossing 2	SCE	III
Kaweah No. 2 Flowline Access Trail – Water User 14	Private	II
Kaweah No. 2 Flowline Access Trail – Water User 9	Private/SCE	II
Kaweah No. 2 Powerhouse River Access Trail	SCE	II
Kaweah No. 3 Development		
Kaweah No. 3 Flowline Access Trail	BLM	II

Facility Name	Jurisdiction	BLM VRM Classification[1]
Ancillary and Support Facilities		
Kaweah No. 1 Powerhouse Campus	SCE	II
Kaweah No. 1 Diversion Intake House Solar Panel	Private	II
Kaweah No. 1 Solar Yard Satellite Repeater	Private	II
Kaweah No. 1 Intake Cableway	Private	II
Kaweah No. 1 Grapevine Satellite Repeater	BLM	II
Kaweah No. 2 Powerhouse River Access Parking	SCE	II
Kaweah No. 2 Intake Cableway	Private	III
Kaweah No. 2 Wildlife Bridges	SCE	II / III
Kaweah No. 2 Wildlife Escape Ramps	SCE	II
Kaweah No. 2 Footbridges	Private/SCE	II
Kaweah No. 3 Wildlife Bridges	BLM	II
Kaweah No. 3 Wildlife Escape Ramps	BLM	II
Kaweah No. 3 Footbridges	BLM	II

Notes: Red = Changes from Pre-Application Document

1. Bureau of Land Management (BLM) Visual Resource Management (VRM) Classification. Note that VRM classification was derived from generalized data provided by the BLM. BLM classifications are not applicable to private land.
2. SCE* = Facility is partially or wholly on SCE lands within the administrative boundary of the NPS and covered by the Department of the Interior permit issued June 29, 1975

Table LAND 2-2. Consultation and Data Gathering Summary

Primary Contact	Date	Type of Correspondence	Study Element			Discussion Summary
			Visual Resource Study	Helicopter Noise Study	Kaweah No. 3 Forebay Spill Study	
Tulare County						
Hector Guerra, Chief Planner	3/27/2018	e-mail	X	X		Provided overview of Kaweah Project (Project). Requested input regarding the selection of Key Observation Points (KOPs).
Hector Guerra, Chief Planner Timothy Baily, Planner IV	3/28/2018	e-mail	X	X		Provided additional information about the Project and KOP selection process.
Timothy Baily, Planner IV	4/11/2018	telecom	X	X		Discussed selection of KOPs and received suggestions for areas to check near the Kaweah No. 1 Powerhouse Campus and the Kaweah No. 2 Flowline during field visit. Requested information about aesthetic policies and criteria contained in the Tulare County General Plan and Three Rivers Community Plan.
Bureau of Land Management (BLM)						
Brien Chartier, Outdoor Recreation Planner	3/27/2018	E-mail	X			Requested input on KOP selection process. Received reply on 3/27/18 stating that BLM had no additional questions or input regarding the KOP selection process or related to other LAND 2 - TSP study objectives.
National Park Service (NPS)						
Denise Robertson, District Ranger	4/4/2018	in-person meeting	X	X	X	Discussed noise and visual sensitive locations within the Sequoia National Park (SNP).
Denise Robertson, District Ranger	5/22/2018	telecom		X	X	Meeting to discuss spill and noise monitoring equipment to be used for the spill and helicopter noise studies.
Denise Robertson, District Ranger	5/22/2018	e-mail		X	X	Provided NPS photos of noise monitoring equipment; discussed road construction activities in SNP during spill assessment.

Primary Contact	Date	Type of Correspondence	Study Element			Discussion Summary
			Visual Resource Study	Helicopter Noise Study	Kaweah No. 3 Forebay Spill Study	
Southern California Edison Company (SCE)						
Dave Moore, Generation and Hydro Licensing	4/4/2018	in-person meeting		X	X	Discussed noise and visual sensitive locations within the SNP.
Rob Biedermann, Senior Supervisor	4/18/2018	in-person meeting	X	X		Discussed facility modifications since 1989 and helicopter landing areas.
James Kennard, Senior Manager Marco Morales, Chief Operator	4/19/2018	in-person meeting	X	X	X	Discussed facility modifications since 1989, typical spill scenarios, and helicopter usage.
Marco Morales, Chief Operator	5/31/2018	e-mail			X	Provided details about historical spill scenarios from the Kaweah No. 3 Forebay.
James Kennard, Senior Manager Rob Biedermann, Senior Supervisor	9/18/2018	telecom	X	X	X	Discussed routine operation and maintenance activities involving helicopter use.

Table LAND 2-3. Visual Contrast Rating Summary

Facility	KOP No.	Date Evaluated	Land/Water				Vegetation				Structures				Composite Contrast Rating
			Line	Form	Color	Texture	Line	Form	Color	Texture	Line	Form	Color	Texture	
Kaweah No. 1 Powerhouse Campus Maintenance Building	1	5/9/2018	Mod	Weak	Weak	Weak	Weak	Weak	Weak	Weak	Strong	Strong	Strong	Strong	Mod
Kaweah No. 2 Diversion Dam Intake Structure	3	5/10/2018	Weak	Weak	None	None	None	None	None	None	Mod	Mod	None	None	Weak

Table LAND 2-4. Visual Compatibility Assessment Summary

Facilities	Seen From	Visual Sensitivity	Scenic Quality	Distance Zone	Visual Contrast
Kaweah No. 1 Powerhouse Campus Maintenance Building	Highway 198	High	A/B	Foreground	Moderate
Kaweah No. 2 Diversion Dam Intake Structure	Indian Head River Trailhead and Highway 198	High	A	Foreground/ Middleground	Weak

Table LAND 2-5a. Noise Levels at the Indian Head River Trailhead Parking Area with and without Helicopter Operations

Metric	Noise Levels (dB) Without Helicopter Operations Average (Range)	Noise Levels (dB) During Helicopter Operations Average (Range)	Difference between Averages (dB)
L_{eq}	52.9 (52.5 - 53.2)	68.3 (67.3 - 69.1)	15.4
L_{max}	67.7 (67.3 - 68.2)	80.7 (80.2 - 81.2)	13

Table LAND 2-5b. Noise Levels at the Foothill Visitor Center Picnic Area with and without Helicopter Operations

Metric	Noise Levels (dB) Without Helicopter Operations Average (Range)	Noise Levels (dB) During Helicopter Operations Average (Range)	Difference between Averages (dB)
L_{eq}	48.3 (47.7 - 48.8)	57.8 (56.9 - 58.6)	9.5
L_{max}	69.3 (66.6 - 71.4)	74.1 (70.1 - 76.1)	4.8

Notes: Both the average and the range (in parentheses) are provided. Note that these noise levels do not consider the 11:00 a.m. to 12:00 p.m. hour as only approximately 25 minutes during that hour included helicopter operations.

dB = decibels
L_{eq} = energy average
L_{max} = maximum noise level
L_{dn} = day-night average

Table LAND 2-6a. Noise Levels at the Indian Head River Trailhead Parking Area with and without the Kaweah No. 3 Forebay Spill Event

Metric	Noise Levels (dB) Without Spill Average (Range)	Noise Levels (dB) During Spill Average (Range)	Difference between Averages (dB)
L_{eq}	61.4 (61.0 - 61.8)	61.8 (61.5 - 62.1)	0.4
L_{max}	64.2 (62.3 - 72.0)	65.3 (62.7 - 71.2)	1.1
L_{90}	60.7 (60.1 - 61.1)	61.1 (60.8 - 61.2)	0.4

Table LAND 2-6b. Noise Levels at the Foothill Visitor Center Picnic Area with and without the Kaweah No. 3 Forebay Spill Event

Metric	Noise Levels (dB) Without Spill Average (Range)	Noise Levels (dB) During Spill Average (Range)	Difference between Averages (dB)
L_{eq}	47.3 (43.5 - 52.5)	49.8 (47.1 - 51.9)	2.5
L_{max}	58.8 (51.4 - 69.5)	59.8 (53.1 - 66.9)	1.0
L_{90}	41.7 (38.2 - 44.7)	46.5 (43.2 - 47.9)	4.8

Notes: Both the average and the range (in parentheses) are provided.

dB = decibels

L_{eq} = energy average

L_{max} = maximum noise level

L_{dn} = day-night average

FIGURES

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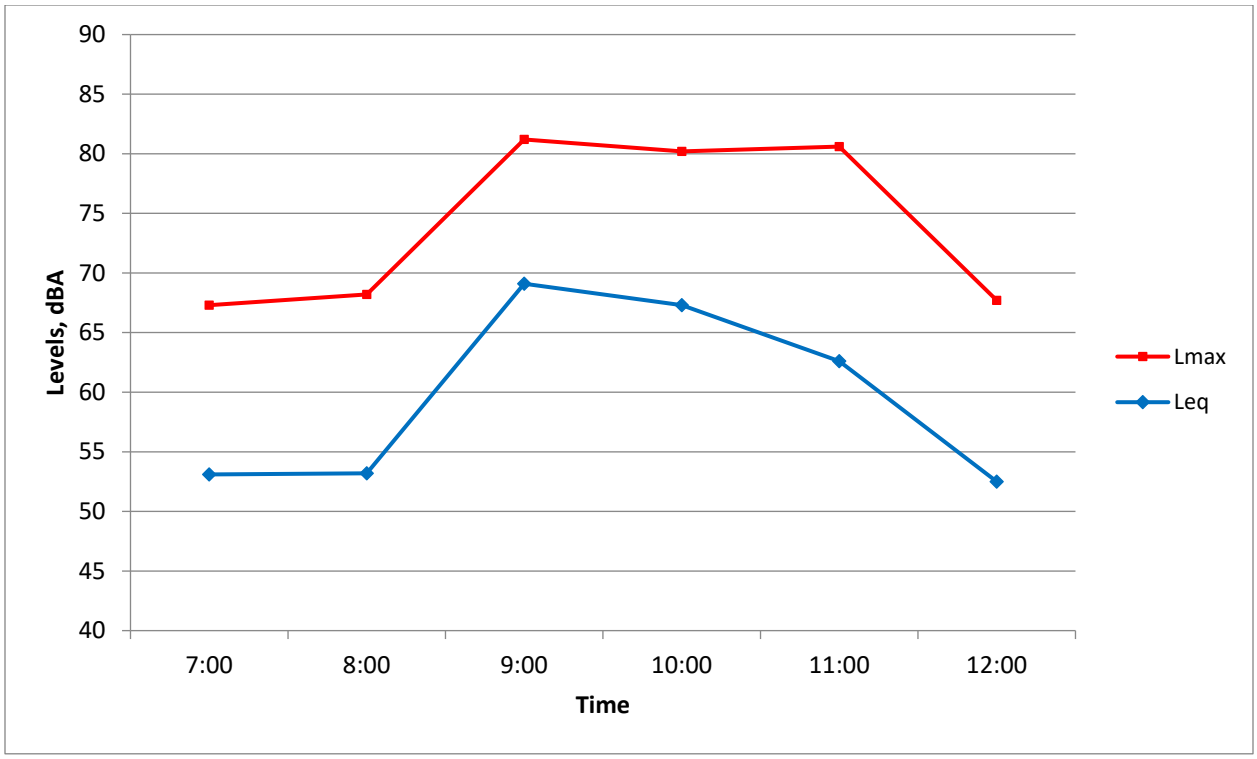

Figure LAND 2-1 Helicopter Noise Study. Noise Levels at the Indian Head Parking Area. (September 26, 2018)

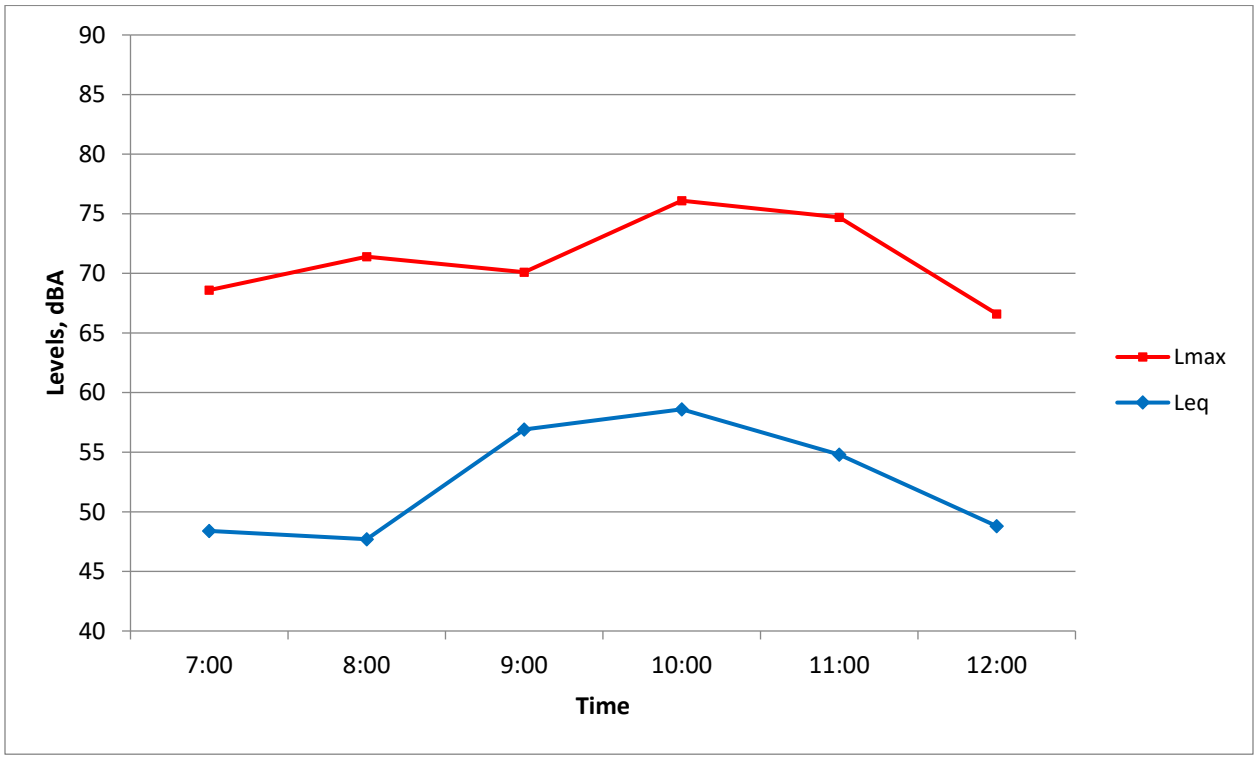

Figure LAND 2-2. Helicopter Noise Study. Noise Levels at the Foothill Visitors Center. (September 26, 2018)

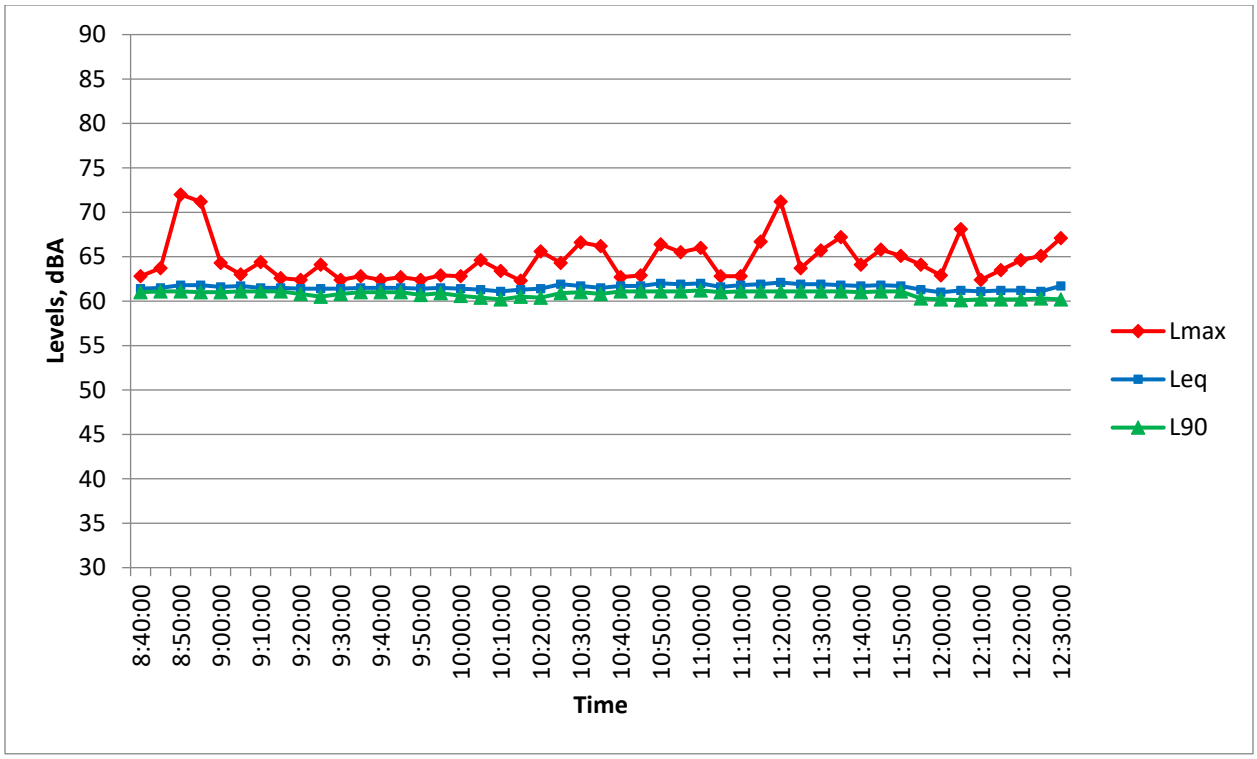

Figure LAND 2-3. Kaweah No. 3 Forebay Spill Study. Noise Levels at the Indian Head Parking. (May 31, 2018)

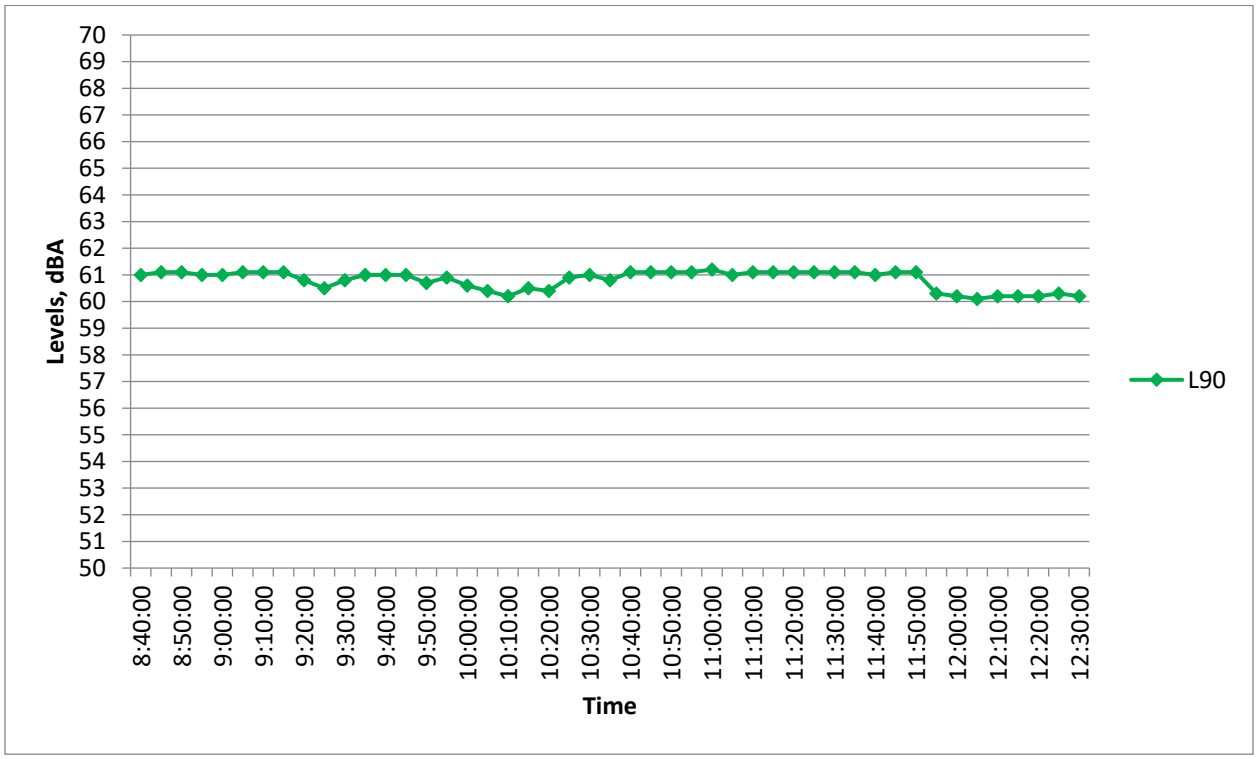

Figure LAND 2-4. Kaweah No. 3 Forebay Spill Study. Indian Head Parking Area, L_{90} Values. (May 31, 2018)

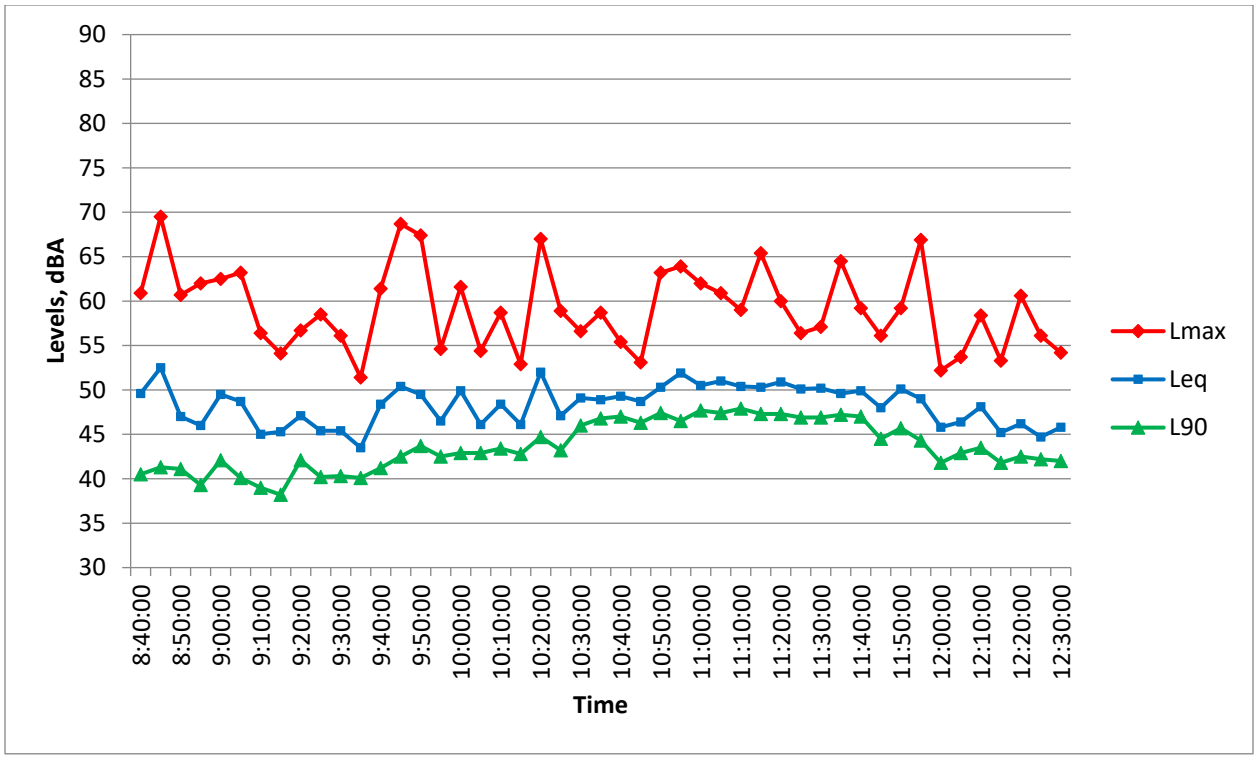

Figure LAND 2-5. Kaweah No. 3 Forebay Spill Study. Noise Levels at the Foothills Visitor Center. (May 31, 2018)

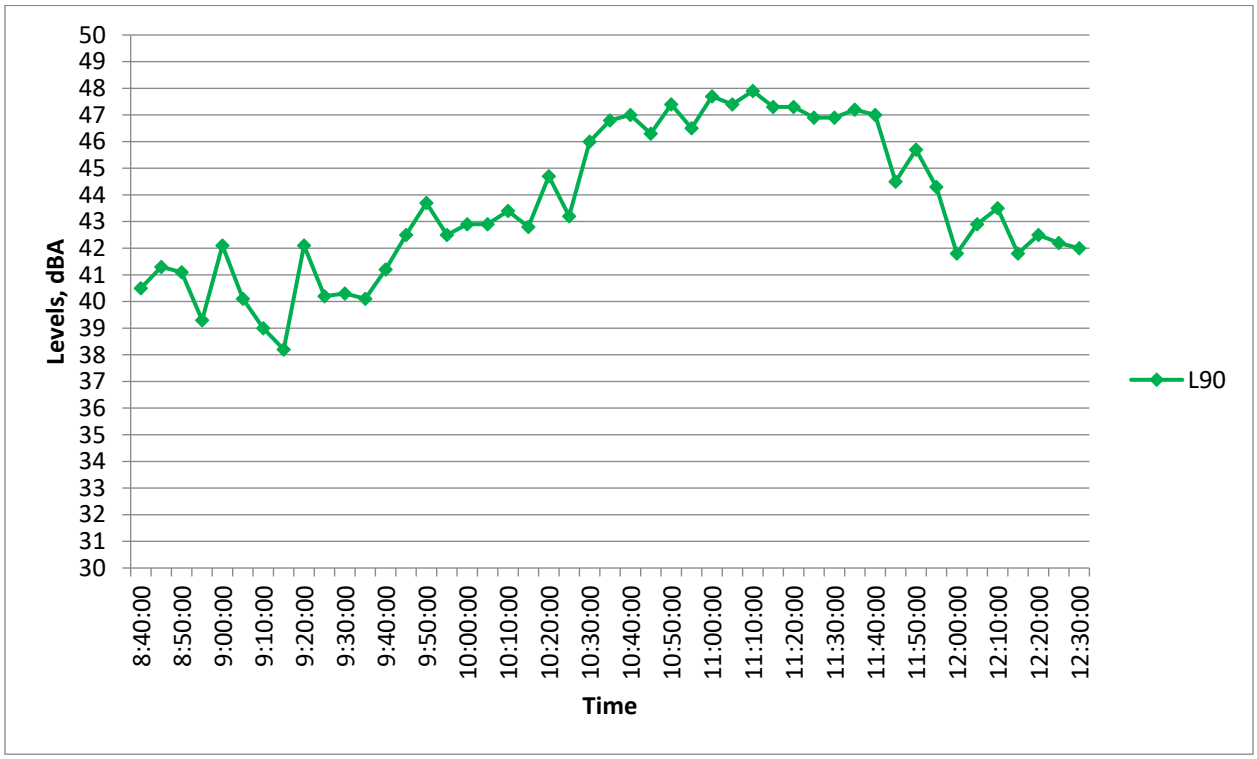

Figure LAND 2-6. Kaweah No. 3 Forebay Spill Study. Foothills visitor Center, L_{90} Values. (May 31, 2018)

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MAPS

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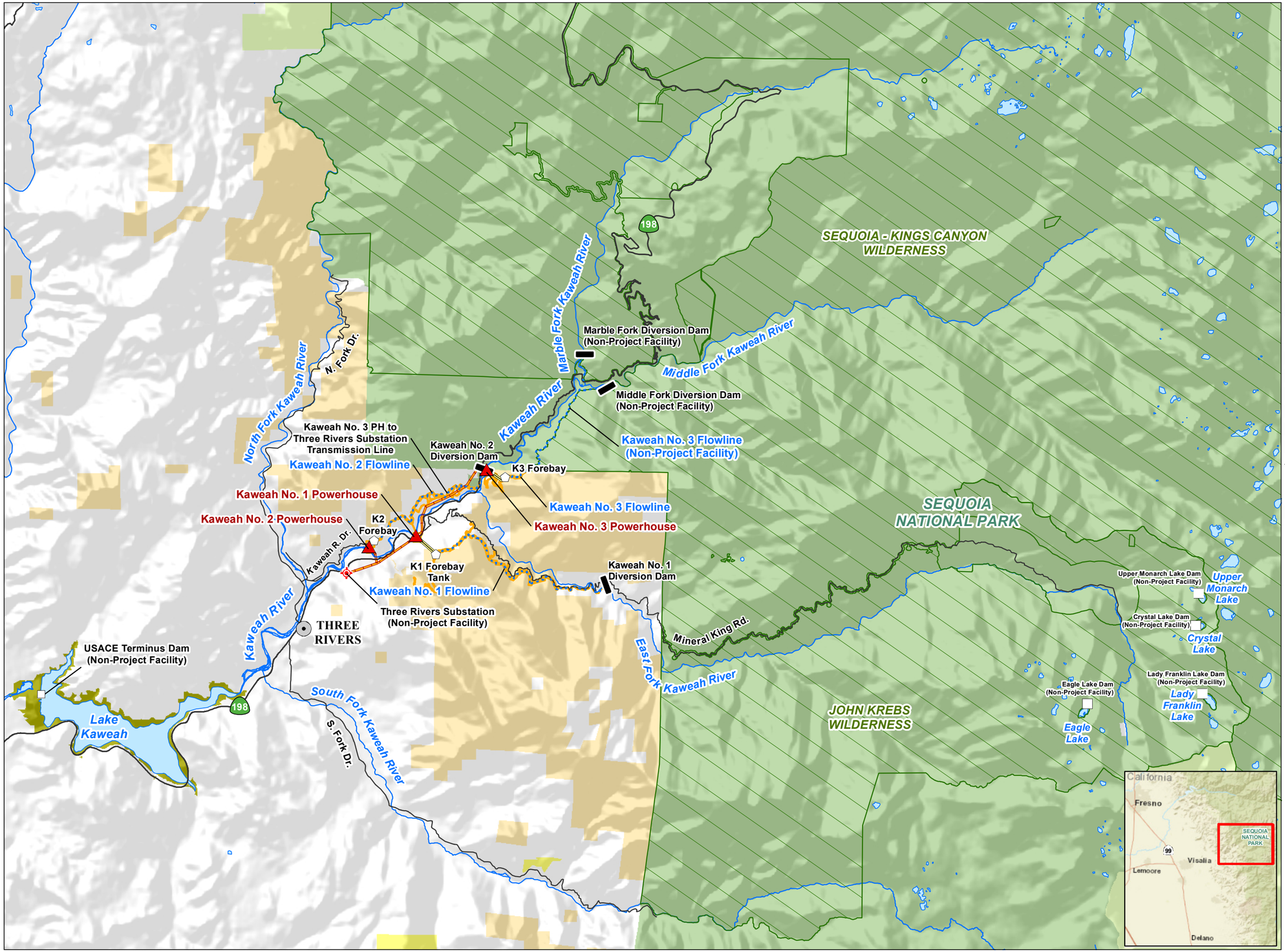

Facilities

- Powerhouse
- Diversion
- Utility
- Forebay
- Gage
- Flowline
- Penstock
- Transmission Line
- Project FERC Boundary

NOTE: The Marble and Middle Fork Diversion Dams are not in designated Wilderness

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body

Land Jurisdiction*

- Bureau of Land Management
- U.S. Army Corps of Engineers
- National Park Service
- U. S. Forest Service
- State Of California
- Private (Blank)

*SOURCE: BLM 2016

Land Management

- National Wilderness Area

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FERC Project No. 298

Map LAND 2-1

Primary Project Facilities, Travel Routes and Water Bodies in the Vicinity of the Kaweah Project

Date: 11/16/2018

0 0.5 1 2 Miles

Projection: UTM Zone 11
Datum: NAD 83

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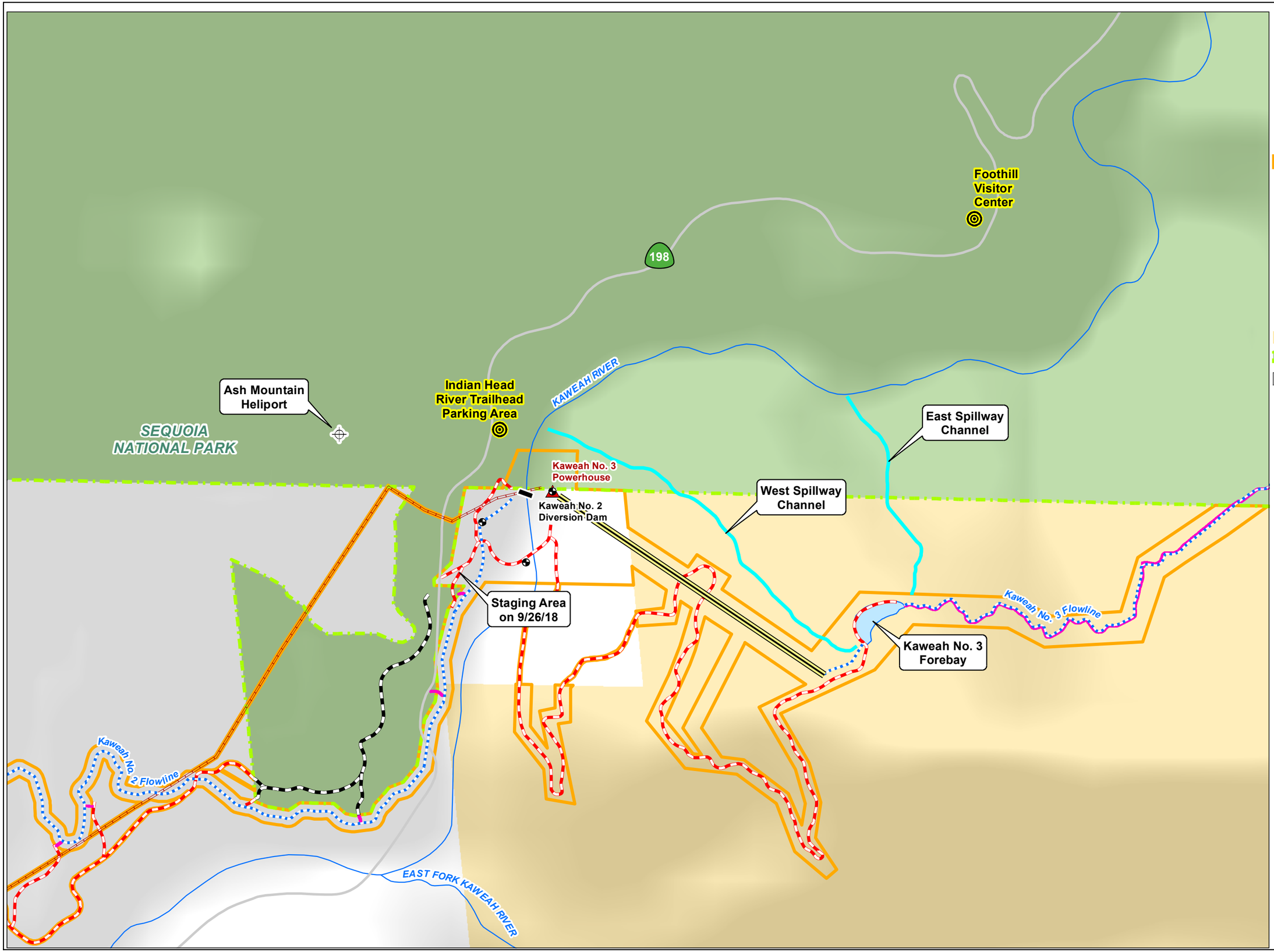

Facilities

- Powerhouse
- Diversion
- Flowline
- Spillway Channel or Pipe
- Penstock
- Gage
- Transmission Line
- FERC Boundary

Other Features

- Watercourse

Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Highway

Land Jurisdiction*

- Bureau of Land Management
- National Park Service
- Private (Blank)

*SOURCE: BLM 2016

Noise Monitoring Locations

- Noise Monitoring Location

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FERC Project No. 298

Map LAND 2-2

Helicopter and Spill Study
Noise Monitoring Locations

0 250 500 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/16/2018

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KOP 4
KOP 3
KOP 2
Kaweah No. 3
Powerhouse
Kaweah No. 2
Diversion Dam
SEQUOIA
NATIONAL PARK
Kaweah No. 3 Flowline
K3 Forebay
Flowline
KAWEAH RIVER
198
Kaweah No. 1
Powerhouse
Kaweah No. 1
Powerhouse Campus
KOP 1
K2 Forebay
Kaweah No. 2
Powerhouse
Kaweah No. 1 Flowline
K1 Forebay Tank
EAST FORK KAWEAH RIVER

Facilities
- Powerhouse
- Diversion
- Flowline
- Spillway Channel or Pipe
- Penstock
- Gage
- Transmission Line
- FERC Boundary

Other Features
- Watercourse

Transportation
- Project Road
- Project Trail
- Non-Project General Access Road
- Highway

Land Jurisdiction*
- Bureau of Land Management
- National Park Service
- Private (Blank)

*SOURCE: BLM 2016

KOP Locations
- Key Observation Point with Direction

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FERC Project No. 298

Map LAND 2-3

KOP and Visual Resources Assessment Facility Locations

0 500 1,000 Feet

Date: 11/16/2018

Projection: UTM Zone 11
Datum: NAD 83

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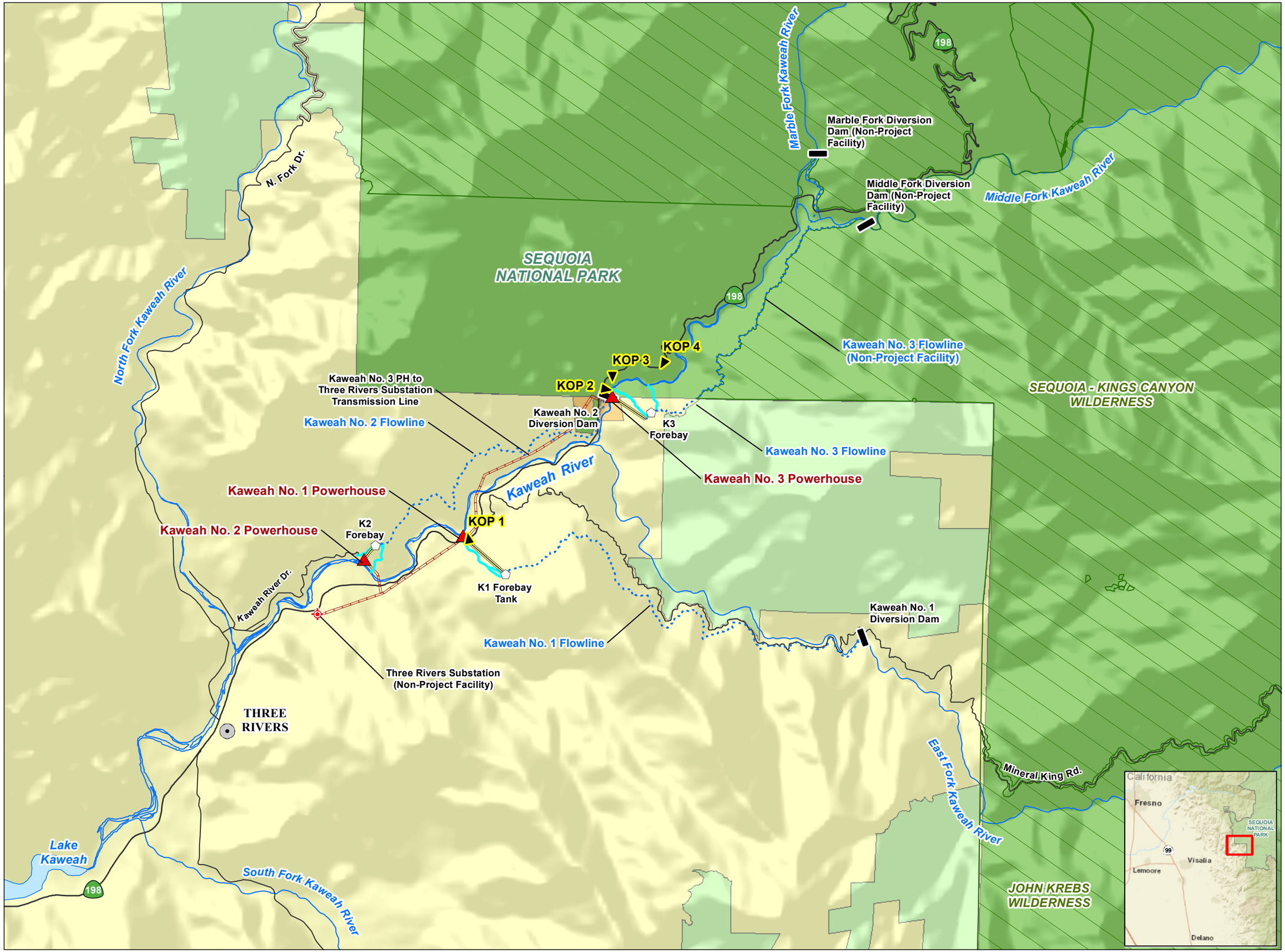

Facilities

- Powerhouse
- Diversion
- Utility
- Forebay
- Gage
- Flowline
- Spillway Channel or Pipe
- Penstock
- Transmission Line

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body

Visual Resource Management*

- VRM Class I
- VRM Class II
- VRM Class III

*SOURCE: BLM, Bakersfield Field Office, 2017

Land Management

- National Wilderness Area
- National Park Service

KOP Locations

- Key Observation Point with Direction

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FERC Project No. 298

Map LAND 2-4

BLM Visual Resource Management Classifications (Generalized)

0 0.5 1 Miles

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/16/2018

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APPENDIX A

BLM Visual Contrast Rating Worksheets

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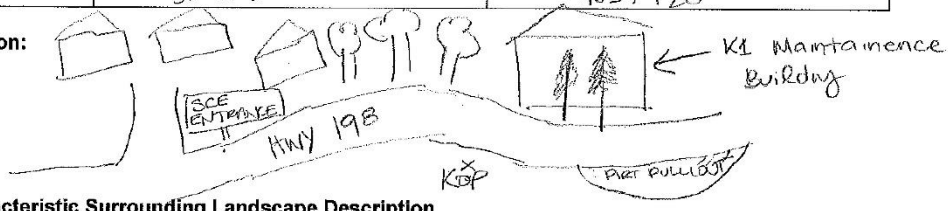
Date	5/9/18 3:30 PM
Recorder (s)	UC, SHP

Kaweah -- Visual Contrast Rating Worksheet

Section A: Project Information

Study Area (Circle):	K1 Powerhouse Campus	K2 Dam and Flowline	NPS KOP Picnic Area
Key Observation Point Label:	KOP1PHCAMPUS		
UTM	Easting: 333223	Northing: 4037128	

Sketch of Location:



Section B: Characteristic Surrounding Landscape Description

	Land/Water	Vegetation	Structures
Form	flat to folding	irregular, rounded	linear, small
Line	undulating, horizontal, smooth	broken	horizontal & jagged
Color	soft green to brown	light brown to dark green	soft white & brown to grey
Texture	smooth	random, medium, scattered	rough & scattered

Section C: Post-1989 Modified Facility Description → "K1 Maintainence Building"

	Land/Water	Vegetation	Structures
Form	no change	no change	prominent, tall, perpendicular
Line	horizontal to vertical	no change	vertical & hard angular
Color	no change	no change	bright white
Texture	smooth to course	random, medium, sparse	course

Section D: Contrast Rating (mark each box with a check as it applies)

Degree of Contrast (Elements)	Degree of Contrast (Features)											
	Land/Water Body				Vegetation				Structures			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form			X				X		X			
Line		X					X		X			
Color			X				X		X			
Texture			X				X		X			

Strong – The element contrast attracts attention and will not be overlooked

Moderate – The element contrast begins to attract attention and is not easily overlooked

Weak – The element contrast can be seen but does not attract attention

None – The element contrast is not visible or perceived.

Notes about project: complete next page

Date	5/9/18 8:20 PM
Recorder (s)	JC, SHP

Key Observation Point Label: KOP1 PHCAMPUS

Does Project design meeting visual resource management objective (Circle)? Yes No
Explain: Not applicable, County does not have visual resource objectives

Mitigating measures recommended:
Plant native vegetation on both sides (East & West) of K1 Maintenance Building to reduce visual impact.

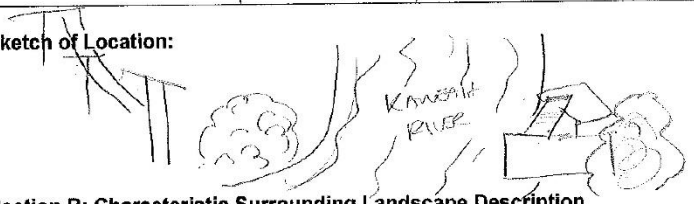
Date	5/10/18 9:18 AM
Recorder (s)	JC, SHP

Kaweah -- Visual Contrast Rating Worksheet

Section A: Project Information

Study Area (Circle):	K1 Powerhouse Campus	K2 Dam and Flowline	NPS KOP Picnic Area
Key Observation Point Label:	K2 INTAKE	[KOP3 PO K2 INT]	
UTM	Easting: 335604	Northing: 4039755	

Sketch of Location:



Section B: Characteristic Surrounding Landscape Description

	Land/Water	Vegetation	Structures
Form	rolling & rounded	regular, numerous, curvy	distinct, vertical, small,
Line	curvy & continuous	soft, regular, undulating	irregular, hard
Color	tan to dark green to white	light green to dark green	grey matted to glaring to orange
Texture	fine grain, dense, even & continuous	medium-to fine grain, dense & even	scattered, contrasty

Section C: Post-1989 Modified Facility Description

K2 intake changes

	Land/Water	Vegetation	Structures
Form			distinct, vertical, small
Line	NO CHANGE FROM ABOVE		angular, irregular, hard
Color			grey matted to glaring to blue
Texture			irregular, scattered, contrast

Section D: Contrast Rating (mark each box with a check as it applies)

Degree of Contrast (Elements)	Degree of Contrast (Features) – Land/Water Body: Strong	Moderate	Weak	None	Vegetation: Strong	Moderate	Weak	None	Structures: Strong	Moderate	Weak	None
Form				X				X		X		
Line				X				X		X		
Color				X				X			X	
Texture				X				X			X	

Strong – The element contrast attracts attention and will not be overlooked

Moderate – The element contrast begins to attract attention and is not easily overlooked

Weak – The element contrast can be seen but does not attract attention

None – The element contrast is not visible or perceived.

Notes about project: complete next page

Date	5/10/18 9:15 AM
Recorder (s)	JC, STP

Key Observation Point Label: KOP3 POINT

Does Project design meeting visual resource management objective (Circle)? Yes (No)

Explain: The structures, while sparse & not seen for a significant time, do create unnatural view on the otherwise wild & natural landscape.

Mitigating measures recommended:

change blue colored structure on ladder to more natural color.

APPENDIX B

Photographs

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Photo B-1. Area within the Kaweah No. 1 Powerhouse Campus before the maintenance building was constructed in 2012. View is looking east from within the campus. Date unknown.

Photo B-2. New maintenance building constructed within the Kaweah No. 1 Powerhouse Campus boundaries in 2012. View is looking east from within the campus. Photo taken April 18, 2018.

Photo B-3. Kaweah No. 1 Powerhouse Campus maintenance building as viewed from KOP 1, looking northeast across Highway 198. Photo taken May 10, 2018.

Photo B-4. Kaweah No. 2 Diversion Dam intake structure before 2012 modifications. Date unknown.

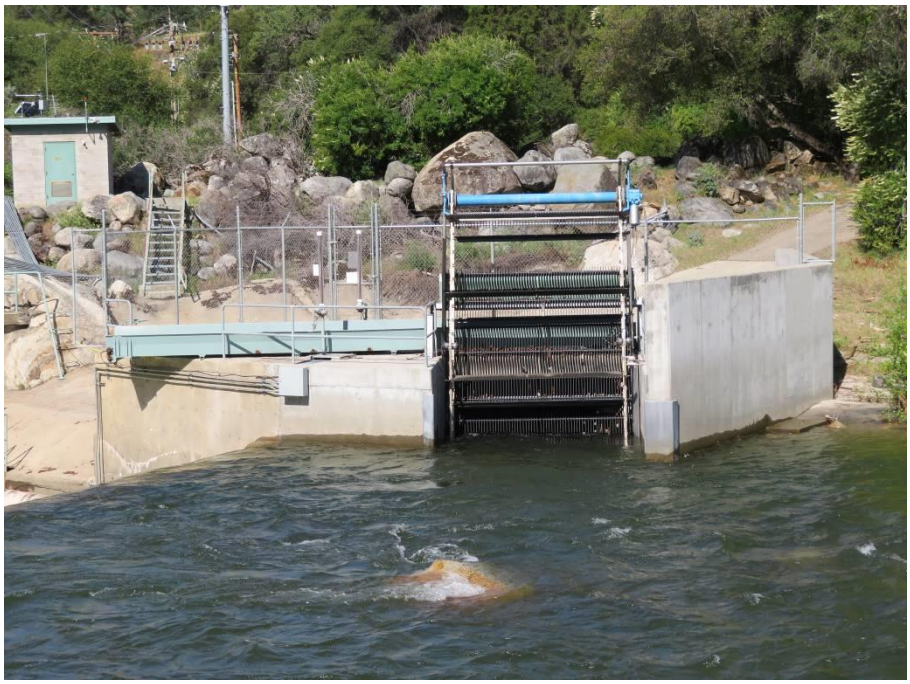

Photo B-5. Kaweah No. 2 Diversion Dam intake structure after 2012 modifications. Photo taken May 8, 2018.

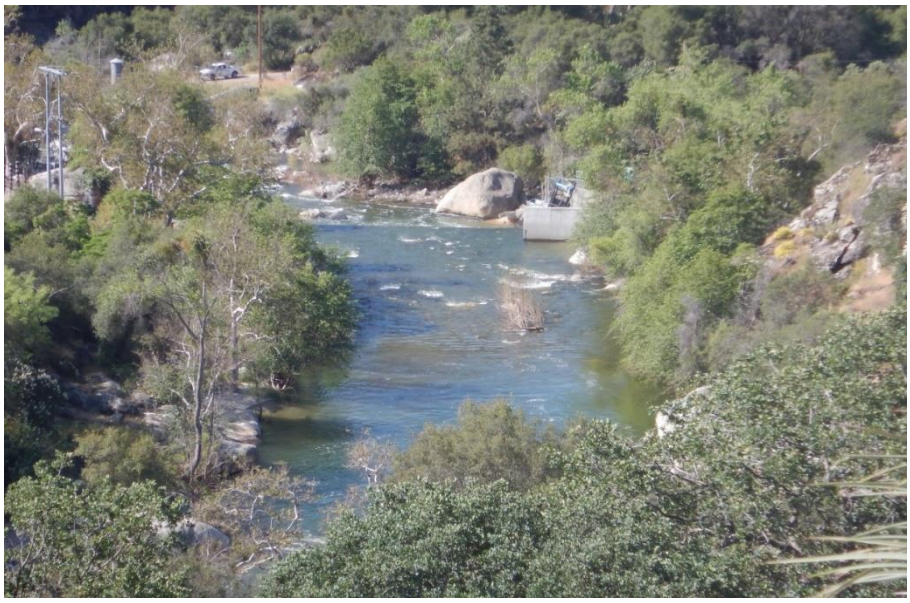

Photo B-6. Kaweah No. 2 Diversion Dam and intake structure as viewed from KOP 3. Note that diversion dam is not readily apparent because it is covered in water. The concrete intake structure is visible on the right side of the river, upstream of the large bedrock boulder behind it. View is looking south, downstream. Photo taken May 10, 2018.

Photo B-7. View of the Kaweah No. 3 Forebay Spillway Channel (east) looking southwest from the Foothill Visitor Center Picnic Area (KOP 4) before the spill event. Photo taken May 31, 2018.

Photo B-8. View of the Kaweah No. 3 Forebay Spillway Channel (east) looking southwest from the Foothill Visitor Center Picnic Area (KOP 4) during a maximum (92 cfs) spill event. Photo taken May 31, 2018.

Photo B-9. View of the Kaweah No. 3 Forebay Spillway Channel (east) looking southwest from the Foothill Visitor Center Parking Area during a maximum (92 cfs) spill event. Photo taken May 31, 2018.

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Kaweah Project, FERC Project No. 298

LAND 3 – Land Use
Final Technical Study Report

December 2019

Southern California Edison Company
Regulatory Support Services
1515 Walnut Grove Avenue, Rosemead, CA 91770

Table of Contents

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List of Acronyms

BLM	Bureau of Land Management
CFR	Code of Federal Regulations
DLA	Draft License Application
EAP	Emergency Action Plan
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
GPS	Global Positioning System
Project	Kaweah Project
PSP	Proposed Study Plan
RSP	Revised Study Plan
SCE	Southern California Edison Company
TSP	Technical Study Plan
TSR	Technical Study Report
UTM	Universal Transverse Mercator

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1 INTRODUCTION

This Technical Study Report (TSR) describes the findings and data developed by Southern California Edison Company (SCE) in association with implementation of the LAND 3 – Land Use Technical Study Plan (LAND 3 – TSP) for the Kaweah Project (Project). The LAND 3 – TSP was included in SCE's Revised Study Plan (RSP)[1] (SCE 2017a) and was approved by the Federal Energy Regulatory Commission (FERC) on October 24, 2017, as part of its Study Plan Determination for the Project (FERC 2017). Specifically, this report provides a description of the methods and results of land use studies completed in 2018.

The Draft LAND 3 – TSR was distributed to the stakeholders for a 90-day review and comment period on February 15, 2019 (SCE 2019a). No comments requiring report revisions were received at that time so the report was finalized and included in Appendix A of the Draft License Application, which was filed with the FERC and concurrently distributed to the stakeholders on August 3, 2019 (SCE 2019b). The Bureau of Land Management (BLM) subsequently provided comments on the Draft License Application (DLA) and the LAND 3 – TSR by letter dated October 31, 2019. The LAND 3 – TSR has been revised to address the comments provided by the BLM.

Based on the comments contained in the BLM's letter, it was clear that the information presented in the original report was confusing, primarily because it comingled Project-related features with non-Project features. Therefore, this report has been reorganized and revised to clearly distinguish between Project and non-Project facilities and features, as appropriate. Furthermore, the phrase "exclusionary fencing" has been removed from this report because the terminology is confusing and ambiguous. For clarity, all fencing is now discussed in terms of Project fencing and non-Project fencing, which are defined as follows:

- **Project Fences.** These are fences that were erected by SCE specifically to protect public safety and Project facilities. Table LAND 3-1 provides a list of the Project fences and Map LAND 3-1a-k shows the location of the Project fences. As indicated, Project fences are located around select Project facilities such as powerhouses, switchyards, tailraces, and forebays. SCE regularly inspects and maintains the Project fences. Accordingly, all of the Project fences are in good condition.
- **Non-Project Fences.** These fences were not constructed by SCE and are not necessary for operation of the Project. Non-project fences in the vicinity of the flowlines were erected by either the BLM or private landowners. SCE is not responsible for inspecting or maintaining non-Project fences.

2 STUDY OBJECTIVES

The LAND 3 – TSP included four study objectives, as follows:

- Identify the location, condition, use and maintenance of existing fences, gates, cattle guards, bridges, watering troughs, and escape ramps in the immediate vicinity of Project facilities.
- Characterize SCE's maintenance practices and responsibilities for all Project fences and non-Project fences, regardless of land ownership.
- Assess potential safety issues and the resultant impacts to livestock grazing opportunities on adjacent lands and the surrounding livestock management areas, which support those lands and operations.
- Identify measures to reduce or avoid impacts to public health and safety.

[1] SCE filed a Proposed Study Plan (PSP) on May 24, 2017 (SCE 2017b). Three comments were filed on the PSP; however, they did not result in revisions to any of the study plans. Therefore, SCE filed a Revised Study Plan (RSP) on September 19, 2017, which stated that the PSP, without revision, constituted its RSP. The FERC subsequently issued a Study Plan Determination on October 24, 2017, approving all study plans for the Kaweah Project.

3 EXTENT OF STUDY AREA

The Study Area was defined in the LAND 3 – TSP and included the Kaweah No. 2 Flowline and Forebay, the Kaweah No. 3 Flowline and Forebay, and the land surrounding these facilities within the FERC Project boundary. Additionally, per a BLM request, information regarding non-Project fencing was collected along an approximately 1.5-mile long segment of the Kaweah No. 1 Forebay Road, beginning at the locked gate located on Craig Ranch Road. The Study Area and survey dates are identified in Table LAND 3-2. Maps LAND 3-1a-k graphically depict the Study Area discussed in this report.

4 STUDY APPROACH AND METHODS

This section describes the approach and methods used to implement the LAND 3 – TSP.

4.1 Consultation

Some of the information presented in this report was obtained during in-person and teleconference meetings and through e-mail correspondence with SCE personnel, and land managers from the BLM. Table LAND 3-3 identifies the key SCE and agency representatives that provided information that was used to implement the LAND 3 – TSP.

Prior to initiating any field data-gathering efforts, SCE met with BLM representatives on April 11, 2018, to review and verify the extent of the Study Area and the study objectives included in the LAND 3 – TSP. Field data-gathering efforts were implemented based upon feedback provided during that meeting.

4.2 Identification of Project Features

This section describes the approach and methods that were used to identify, map, and assess the condition of the following Project features that are present within the Study Area.

- Project fences
- Project gates
- Footbridges (i.e. flume crossings)
- Wildlife protection features, including wildlife crossings (bridges), escape ramps, escape fences, hazers, and flashers
- Brush out grids
- Grates and debris catchers
- Other safety features (e.g., safety lines, handrails, and warning signs)

4.2.1 Compilation of Existing Information

The location of existing Project features was initially identified using Project facility information maintained by SCE, including information contained in SCE's safety filings and depicted in SCE's existing license exhibits. SCE operators were consulted to clarify the location and/or purpose of select features, as necessary.

4.2.2 Field Surveys

After compiling existing Project facility and feature information, and producing field maps, pedestrian surveys were conducted to confirm and document the location and condition of the Project features identified above. In addition, any "new" features that were identified were documented, mapped, and assessed. Spatial information was collected in the field with a Trimble GeoXT 6000 Global Positioning System (GPS) device using Universal Transverse Mercator (UTM) projection coordinate pairs (Zone 11N, NAD83 meters).

4.2.3 Inventory and Condition Assessment

All Project features, including Project fences, were assessed in the field using the following condition categories and definitions:

- Good – Feature is in new or like-new condition. Feature functions as intended without signs of wear and/or deterioration.
- Fair – Feature shows signs of wear and/or deterioration, but functions as intended.
- Poor – Feature shows heavy signs of wear and deterioration and no longer functions as intended.

The condition of each Project feature identified in the Study Area was assessed and documented in field notebooks and with photographs.

4.2.4 Documentation

All spatial data collected in the field and provided by SCE was incorporated into a GIS using ArcGIS software. The GIS data was subsequently used to produce the maps and tables presented in this report.

4.3 Identification of Non-Project Features

This section describes the approach and methods that were used to identify, map, and assess the condition of the following non-Project features that are present within the Study Area:

- Non-Project fences
- Cattle guards
- Water troughs

4.3.1 Compilation of Existing Information

SCE acquired Geographic Information System (GIS) data from the BLM in April 2018 (BLM 2018). All data provided BLM was incorporated into the Project GIS to produce field maps, and then subsequently verified in the field, as discussed below.

4.3.2 Field Surveys

After compiling existing information provided by the BLM, and producing field maps, pedestrian surveys were conducted to confirm and document the location and condition of non-Project features identified above. In addition, any "new" features that were identified were documented, mapped, and assessed. Spatial information was collected in the field with a Trimble GeoXT 6000 GPS device using UTM projection coordinate pairs (Zone 11N, NAD83 meters).

4.3.3 Inventory and Condition Assessment

All non-Project fencing and features located in the immediate vicinity of the Kaweah No. 2 and Kaweah No. 3 flowlines (including the associated forebays) and along an approximately 1.5-mile long segment of the Kaweah No. 1 Forebay Road (beginning at the locked gate on Craig Ranch Road) were identified and

assessed. The assessment was limited to the features and fencing that is present within 100 feet of either side of the flowlines, and within 100 feet of either side of the road as shown on Maps LAND 3-1a-k. Fencing that continues beyond the defined Survey Area was not assessed.

In some cases it was not possible to safely access the fences located within the Study Area due to dense vegetation or excessively steep terrain. In these cases, fence location was estimated based on the distance from known physical features (e.g., the flowline) or topographic features (e.g., a prominent point) and, if possible, condition was assessed visually from a distance.

Non-Project features including cattle troughs and cattle guards were assessed in the field using the following condition categories and definitions:

- Good – Feature is in new or like-new condition. Feature functions as intended without signs of wear and/or deterioration.
- Fair – Feature shows signs of wear and/or deterioration, but functions as intended.
- Poor – Feature shows heavy signs of wear and deterioration and no longer functions as intended.

Various fence types occur in the Study Area including chain link, barbed wire, and wood fences. Due to the linear nature of fencing, and the fact that various types of non-Project fencing is present in the Study Area, the approach used to inventory and assess non-Project fencing was slightly different than that used for the other features. Specifically, each fence type was assessed using the following condition categories and definitions:

- Good – Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.
- Fair – Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration, but is still generally functional.
- Poor – Fence contains medium to large gaps, or just fence posts. Fence does not function as a barrier.

In cases were fence condition changed from fair to poor, the overall condition of the fence was categorized as poor. Representative photos showing each type of fence condition were taken during the survey.

4.3.4 Documentation

All spatial data collected in the field and provided by BLM was incorporated into a GIS using ArcGIS software. The GIS data was subsequently used to produce the maps and tables presented in this report. In cases where the BLM fence data could not be field verified, or was outside of the 100 foot Survey Area buffer, the condition in the final data layer was categorized as “Not Assessed” because the BLM fence data layer did not contain information about fence condition.

4.4 Characterization of Maintenance Practices and Responsibilities

SCE’s maintenance practices, responsibilities, and schedules were identified based on interviews with SCE staff and operators with detailed knowledge of Project facilities and operations.

Similarly, existing agreements (e.g. maintenance agreements, easements, rights of way, and special use permits) between SCE, the BLM, Tulare County, and private property owners were identified based on interviews with knowledgably SCE staff and operators.

4.5 Livestock Mortality

Article 410 of the Kaweah Project License requires the licensee to file a plan to monitor wildlife mortality, especially mule deer, associated with the Kaweah No. 2 and No. 3 flowlines. On January 29, 1993, SCE filed the Flowline Nos. 2 and 3 Wildlife Monitoring Plan Kaweah Hydroelectric Project, FERC No. 298 (Plan). The Plan was approved by FERC Order dated July 8, 1993. Per the FERC Order, annual monitoring shall include the following components: 1) records of wildlife mortality for the calendar year; 2) any observations of animal tracks and/or animal sightings on or near the wildlife bridges; and 3) documentation of the condition of wildlife protective facilities and any maintenance and/or upgrade actions associated with the facilities. Although not specifically required by the Plan, livestock mortality is also recorded and reported.

SCE has monitored and reported livestock and wildlife mortality on an annual basis since 1991. These annual mortality reports were reviewed to identify any livestock mortality incidents that have occurred along the Kaweah No. 2 and Kaweah No. 3 flowlines, including date, locations, and other information, as available. In addition, SCE staff were interviewed to identify additional details.

4.6 Identification of Public Safety Measures

SCE's existing public health and safety programs and measures were identified based on consultation with SCE staff and operators, augmented by a review of SCE's recent safety-related filings. SCE's public safety features (e.g. fencing, barriers, gates, buoy lines, escape ropes, signage, and alarms) was developed as part of the inventory and condition assessment described above.

Title 18 of the Code of Federal Regulations (18 CFR) §12.10 requires a licensee to report safety-related incidents, including deaths and serious injuries, if applicable. These reports are available for review through the FERC's e-library. A search of the e-library was conducted covering the period of January 1, 2000, through May 27, 2019, to identify safety-related incident reports filed by SCE under 18 CFR §12.10. In addition, potential safety-related issues were identified by reviewing SCE's inspection reports that developed by a FERC-approved independent consultant under 18 CFR Part 12, Subpart D and related follow-up documentation. Follow-up consultation with SCE personnel knowledgeable about the Project facilities and operations was conducted if needed for clarification purposes.

5 STUDY RESULTS

This section describes the LAND 3 study results.

5.1 Project Features

All of SCE's wildlife protection and public safety features (excluding fencing) that were inventoried and assessed as part of this study are tabulated in Appendix A, organized by Project facility. Appendix A identifies each feature, pertinent comments, feature condition, photo number, and UTM coordinates. Appendix B contains representative photographs of the Project features and fences in the Study Area. The location of features that were inventoried and assessed as part of this study are shown on Maps LAND 3-1a-k. Data and photographs collected as part of this study are available upon request.

5.1.1 Project Fences

As shown on Table LAND 3-2, the Kaweah Project includes a total of 15 Project fences. Of these, 11 are located within the LAND 1 Study Area. With the exception of the Kaweah No. 2 Flowline Access Road Bridge Fence, all Project fences are constructed of heavy duty cyclone (i.e. chain link) fencing and all were found to be in good condition. The Kaweah No. 2 Flowline Access Road Bridge fence borders both sides of the bridge crossing and consists of good condition metal wire fencing with wood framing. Photographs of

the Project fences are provided in Appendix B. Note that a photograph of the Kaweah No. 3 Forebay Fence is not included in Appendix B because it was installed after field work was completed.

5.2 Non-Project Features

SCE inventoried and mapped all non-Project fences, cattle guards, and cattle troughs located in the Study Area. Two cattle guards were identified, both on the Kaweah No. 1 Forebay Road. Both were rated in poor condition because they were filled with or covered by vegetation, rendering them ineffective.

The BLM specifically requested information regarding cattle troughs along the Kaweah No. 2 Flowline. The GIS data provided by the BLM included two troughs along the Kaweah No. 2 Flowline, however both contained the same spatial coordinate pairs (refer to Map LAND 3-1d for location). During the pedestrian surveys, no troughs were observed along the Kaweah No. 2 or Kaweah No. 3 flowlines, including the location mapped by the BLM. However, an old concrete feature, in poor condition, was observed in the location marked by the BLM coordinate pair (refer to Appendix C Photo C-6 and C-7). This feature does not appear to be functional as a trough.

5.2.1 Non-Project Fences

All non-Project fencing identified in the Study Area is depicted on Maps LAND 3-1a-k, colored based on condition as follows: green = good, yellow = fair, and red = poor. As indicated, many of the non-Project fences that were identified in the Study Area are in fair to poor condition. Furthermore, they are fragmented and discontinuous meaning they are not functional as a barrier. SCE is not responsible for inspecting or maintaining non-Project fences. The non-Project fences are in poor condition due to lack of maintenance either the BLM or private property owners. Representative photographs of non-Project fences are provided in Appendix C.

5.3 Maintenance Practices and Responsibilities

In accordance with 18 CFR Part 12 and applicable license requirements, SCE takes all reasonable measures to maintain and operate the Project to protect life, health, and property. This includes regularly inspecting the Project facilities and the protection safety features identified in this report to ensure they in good condition and functioning properly. All facilities, including the Kaweah No. 2 and Kaweah No. 3 flowlines, are regularly patrolled and inspected on a monthly basis, with more thorough inspections occurring bi-annually by a civil crew. Work orders are created for any items identified during the monthly and bi-annual inspections and repairs are promptly scheduled.

As discussed above, SCE has erected fences around select facilities specifically to protect public safety and Project facilities. As indicated on Table LAND 3-1 and on Map LAND 3-1a-k, Project fences are located around select Project facilities such as powerhouses, switchyards, tailraces, and forebays. SCE regularly inspects and maintains the Project fences. Accordingly, all of the Project fences are in good condition.

Per consultation with SCE, no maintenance agreements exist with the BLM, Tulare County, or private property owners in regard to maintenance of fencing and/or safety features. SCE does not maintain non-Project fences that have been installed by private property owners or by the BLM.

5.4 Livestock Mortality

A total of five domestic livestock mortalities have occurred in the Kaweah No. 2 and Kaweah No. 3 flowlines in 28 years (1991-2018) all of which were domestic cattle. Four of these mortalities occurred on the Kaweah No. 3 Flowline, and one on the Kaweah No. 2 Flowline. Table LAND 3-4 provides additional information about each mortality including the date and animal size, based on records filed with the FERC.

5.5 Public Safety Measures

SCE maintains several programs and measures that are specifically aimed at protecting public health and safety, including: annual consideration of the Emergency Action Plan exemption; warning signage; physical restraining devices; flowline safety measures; and river safety measures. Each of these is described below.

5.5.1 Emergency Action Plan

Pursuant to 18 CFR §12.20(a), the FERC requires licensees to develop and file an Emergency Action Plan (EAP) with the Regional Engineer, unless granted a written exemption in accordance with §12.21(a) of the regulations. Since April 1981, SCE has been exempted from filing an EAP for the Project diversions since it demonstrated that no reasonably foreseeable Project emergency would endanger life, health, or property. As required in 18 CFR §12.21(c)(1), SCE annually reviews the conditions that allow them the exemption by conducting field reconnaissance of areas downstream of all exempt diversions to confirm that no new downstream development has occurred (SCE 2018). Per 18 CFR §12.21(c)(2), if there are any changes to the Project that might cause an emergency endangering life, health, or property, SCE would promptly notify the FERC to determine the necessity to prepare an EAP.

5.5.2 Signage

SCE utilizes signage to warn the public of hazardous areas and potentially dangerous conditions. For example, danger and warning signs are located near facilities that may pose a danger to the public (e.g., flowlines, powerhouses, and switchyards).

5.5.3 Physical Restraining Devices

SCE uses various devices to restrict public access to hazardous areas, including:

- Fences around powerhouses and switchyards;
- Gates limiting access onto Project facilities;
- Grates and debris catchers on intake structures; and
- Hand rails in elevated areas, including along bridges and flowline walkways. These features also protect the health and safety of SCE employees and subcontractors who operate and maintain the Project facilities.

5.5.4 Flowline Safety Measures

Project flowlines transport diverted water to the powerhouses. Despite signage and restraining devices, the Kaweah No. 2 and Kaweah No. 3 flowlines present a potential safety risk to the public and SCE personnel. Accordingly, SCE has installed various features to allow both wildlife and people to safely cross the flowline and other features that provide a mechanism for escape, should an animal or person fall into the water. These features are briefly described below. Appendix A includes an inventory and condition assessment of every safety feature located within the Study Area. In addition, representative photographs of select safety features are included in Appendix B. The location of all flowline safety features in the Study Area are shown on Maps LAND 3-1a-k.

5.5.4.1 Footbridges and Crossings

Footbridges and wildlife crossings are present at various intervals along the Kaweah No. 2 and Kaweah No. 3 flowlines to allow SCE personnel and wildlife to cross safely. The footbridges include signage that they are to be used by SCE personnel only and the public is cautioned to keep off.

5.5.4.2 Escape Features

SCE installed various features to reduce wildlife mortality (drownings) in the Kaweah No. 2 and Kaweah No. 3 flowlines. These include: escape ramps; log and cable booms that cross the flowline at an angle to direct a swimming animal to an escape ramp; escape fencing (chain link fencing attached to the side of the flowline); flashers/hazers; and ropes. While these features are intended for use by wildlife, they also provide a mechanism for the public and SCE personnel to exit the flowline in the event of an accidental fall into the water.

5.5.5 River Safety Measures

A horizontal safety cable is strung across the Kaweah River, just upstream of the Kaweah No. 2 intake facility. This cable is intended to function as a grab line in the event of a fall into the river.

5.5.6 Safety Incidents

A search of the e-library was conducted covering the period of January 1, 2000, through May 27, 2019, to identify safety-related incident reports filed by SCE under 18 CFR §12.10. Since 2000, SCE filed seven incident reports, all relating to flume failures. None of these incidents resulted in injuries or deaths, nor did they cause serious damage to public or private property.

The existing Kaweah Project is classified as a “low hazard” since no reasonably foreseeable Project emergency would endanger life, health, or property. Accordingly, the Project is exempt from the FERC Part 12 Independent Consultants Dam Safety Inspection requirement. However, over the term of the existing license, SCE has participated in FERC dam safety inspections and environmental inspections. Any subsequent FERC directives and items identified during the inspections as requiring attention were timely addressed by SCE and written documentation filed with the FERC.

SCE’s Part 12, Subpart D dam safety inspection, and environmental inspection reports were reviewed and SCE personnel were consulted regarding safety incidents. No public safety incidents associated with the Project were identified in any of these reports.

6 LITERATURE CITED

BLM (Bureau of Land Management). 2018. Bakersfield Field Office. “bfko_points” and “bkfo_fences” GIS data layers.

FERC (Federal Energy Regulatory Commission). 2017. Study Plan Determination for the Kaweah Hydroelectric Project. 20171024-3021. October 24.

SCE (Southern California Edison Company). 2017a. Kaweah Project, Revised Study Plan. Filed with FERC on September 19.

SCE. 2017b. Kaweah Project, Proposed Study Plan. Filed with FERC on May 24.

SCE. 2018. Verification of Southern California Edison Western Operations Projects Exempt from Filing an EAP, FERC Project Nos. 67, 298, 372, 382, 1930, 2085, 2086, 2290, 2174, and 2175. October 23.

SCE. 2019a. Draft LAND 3 – Land Use Technical Study Report, Kaweah Project. Distributed February 15, 2019.

SCE. 2019b. Kaweah Project Draft License Application. Filed with FERC August 3, 2019.

TABLES

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Table LAND 3-1. Project Fences

Name
Kaweah No. 1 Development
Kaweah No. 1 Fish Wheel Fence
Kaweah No. 1 Flowline Control Gate Fence
Kaweah No. 1 Switchyard Perimeter Fence
Kaweah No. 1 Powerhouse Campus Fence
Kaweah No. 2 Development
Kaweah No. 2 Intake Fence
Kaweah No. 2 Forebay Fence
Kaweah No. 2 Powerhouse Perimeter Fence
Kaweah No. 2 Switchyard Perimeter Fence
Kaweah No. 2 Tailrace Channel Fence
Kaweah No. 2 Flowline Control Gate Fence
Kaweah No. 2 Flowline Access Road Bridge Fence
Kaweah No. 3 Development
Kaweah No. 3 Forebay Fence
Kaweah No. 3 Forebay Inlet Trash Rack Fence
Kaweah No. 3 Switchyard Perimeter Fence
Kaweah No. 3 Tailrace Channel Fence

Table LAND 3-2. Project Facilities in the Study Area and Survey Dates

Kaweah No. 1 Development	Survey Dates
Kaweah No. 1 Forebay Road[1]	May 31, 2018
Kaweah No. 2 Development	
Kaweah No. 2 Forebay	April 26, May 10, and May 30, 2018
Kaweah No. 2 Flowline	April 26, May 10, May 30, and Nov 11, 2018
Kaweah No. 3 Development	
Kaweah No. 3 Forebay	May 10 and May 30, 2018
Kaweah No. 3 Flowline	May 10 and May 30, 2018

Notes:

[1] Per BLM request, an approximately 1.5-mile long segment of the Kaweah No. 1 Forebay Road (beginning at the locked gate located on Craig Ranch Road) was added to the LAND 3 Study Area.

Table LAND 3-3. Consultation and Data-Gathering Summary

Primary Contact	Date	Type of Correspondence	Study Element			Discussion Summary
			Safety	Fencing	Livestock Mortality	
Bureau of Land Management (BLM)						
• Karen Doren, Range Specialist • Christina Castellon, Realty Specialist	04/11/2018	telecom	X	X		Discussed LAND 3 – Technical Study Plan (TSP) study objectives and extent of Study Area. The BLM identified specific areas of emphasis for the fence line inventory field data collection effort and requested information about troughs along the Kaweah No. 2 Flowline.
• Romina Copado, GIS	04/05/2018	e-mail		X		Requested BLM existing fenceline data.
Southern California Edison Company (SCE)						
• Vince Morales, Chief Operator	02/26/2018	e-mail			X	Provided information regarding a cow mortality incident in the Kaweah No. 3 Flowline.
• Dave Moore, Generation and Hydro Relicensing	04/11/2018	telecom	X	X		Discussed fencing along the Kaweah No. 2 Flowline.
• James Kennard, Senior Manager	05/08/2018	in-person meeting	X	X		Discussed fencing along the Kaweah No. 3 Flowline and around the Forebay.
• James Kennard, Senior Manager • Rob Biedermann, Senior Supervisor	09/18/2018	telecom	X	X		Discussed safety features at the Kaweah No. 2 Forebay and Flowline and the Kaweah No. 3 Forebay and Flowline.
• Dave Moore, Generation and Hydro Licensing • Sher Beard, Regulatory Affairs and Compliance	10/29/2018	e-mail	X			Requested information about public safety incidents in the Project vicinity that were filed with the FERC.
• Dave Moore, Generation and Hydro Licensing	12/17/2018	e-mail			X	Confirmed receipt of all available livestock and wildlife mortality records.

Table LAND 3-4. Summary of Domestic Animal Mortality, 1991-2018

Year	Date of Incident	Domestic Animal Species	Project Facility	Notes
1991	-	-	-	No reported incidents
1992	-	-	-	No reported incidents
1993	-	-	-	No report submitted
1994	-	-	-	No reported incidents
1995	-	-	-	No reported incidents
1996	-	-	-	No reported incidents
1997	-	-	-	No reported incidents
1998	-	-	-	No reported incidents
1999	-	-	-	No reported incidents
2000	-	-	-	No reported incidents
2001	-	-	-	No reported incidents
2002	January 25	cattle (Bos taurus)	Kaweah No. 3 Forebay	1 adult cow (150 lbs) and 1 calf (75 lbs)
2003	-	-	-	No reported incidents
2004	-	-	-	No reported incidents
2005	Unspecified date	cattle (Bos taurus)	Kaweah No. 2 Forebay	calf
2006	March 19	cattle (Bos taurus)	Kaweah No. 3 Forebay	female calf, 70 lbs
2007	-	-	-	No reported incidents
2008	-	-	-	No reported incidents
2009	-	-	-	No reported incidents
2010	-	-	-	No reported incidents
2011	-	-	-	No reported incidents
2012	-	-	-	No reported incidents
2013	-	-	-	No reported incidents
2014	-	-	-	No reported incidents
2015	-	-	-	No reported incidents
2016	-	-	-	No reported incidents
2017	-	-	-	No reported incidents
2018	February 25	cattle (Bos taurus)	Kaweah No. 3 Flowline	male calf

Source: SCE's Annual Mortality Reports (years 1991 to 2017), which are filed with FERC on an annual basis, as required under Article 410 of the Kaweah Project License. Data for 2018 are not yet available from FERC but were provided by SCE.

MAPS

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A

Kaweah No. 2 Forebay Road
Kaweah No. 2 Forebay Fence
Kaweah No. 2 Flowline Access Trail - Water User 14
Water Tank
WUD-FLUME 14
Kaweah No. 2 Flowline Access Trail - Canal 15
Flume 15
Footbridge
K2 Forebay Repeater
K2 Forebay
K2 Penstock
Kaweah No. 2 Penstock Road
Kaweah No. 2 Flowline West Access Road
aweah River Drive
Kaweah No. 2 Powerhouse Perimeter Fence
Kaweah No. 2 Tailrace Channel Fence
Kaweah No. 2 Powerhouse
K2 Switchyard
Kaweah No. 2 Switchyard Perimeter Fence
Kaweah No. 2 Powerhouse Road
Kaweah No. 2 Powerhouse River Access Trail
KAWEAH RIVER
Kaweah No. 2 Powerhouse Transmission Tap Line
Dinely Road
S198

Facilities

Powerhouse
Diversion
Flowline
Elevated Flowline Segment
Spillway Channel or Pipe
Penstock
Ancillary Facility
Gage
Transmission Line
FERC Boundary

Other Features

Watercourse
Water Body
Water User Diversion

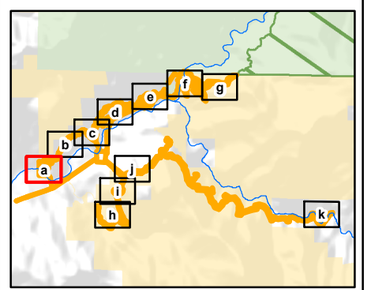
Transportation

Project Road
Project Trail
Non-Project General Access Road
Gate

Land Jurisdiction*

Bureau of Land Management
Wilderness Area
National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



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FERC Project No. 298

Map LAND 3-1a
Kaweah Project

Date: 11/21/2019

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

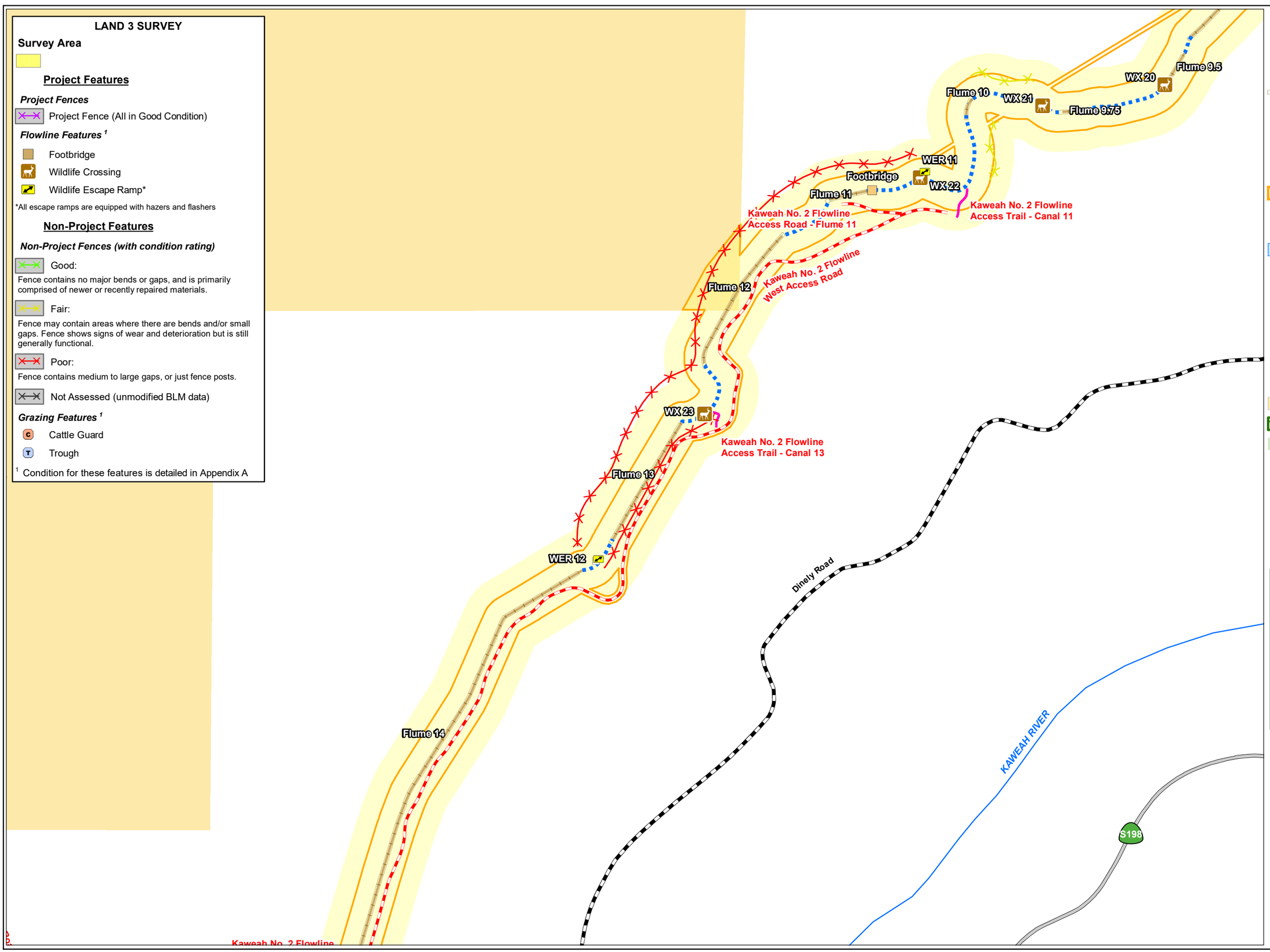
Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A



Facilities

- Powerhouse
- Diversion
- Flowline
- Elevated Flowline Segment
- Spillway Channel or Pipe
- Penstock
- Ancillary Facility
- Gage
- Transmission Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion

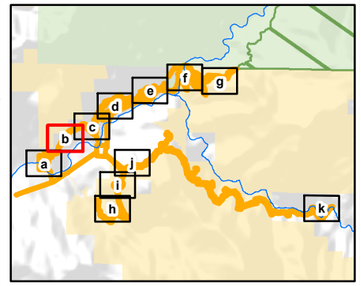
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



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FERC Project No. 298

Map LAND 3-1b
Kaweah Project

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/21/2019

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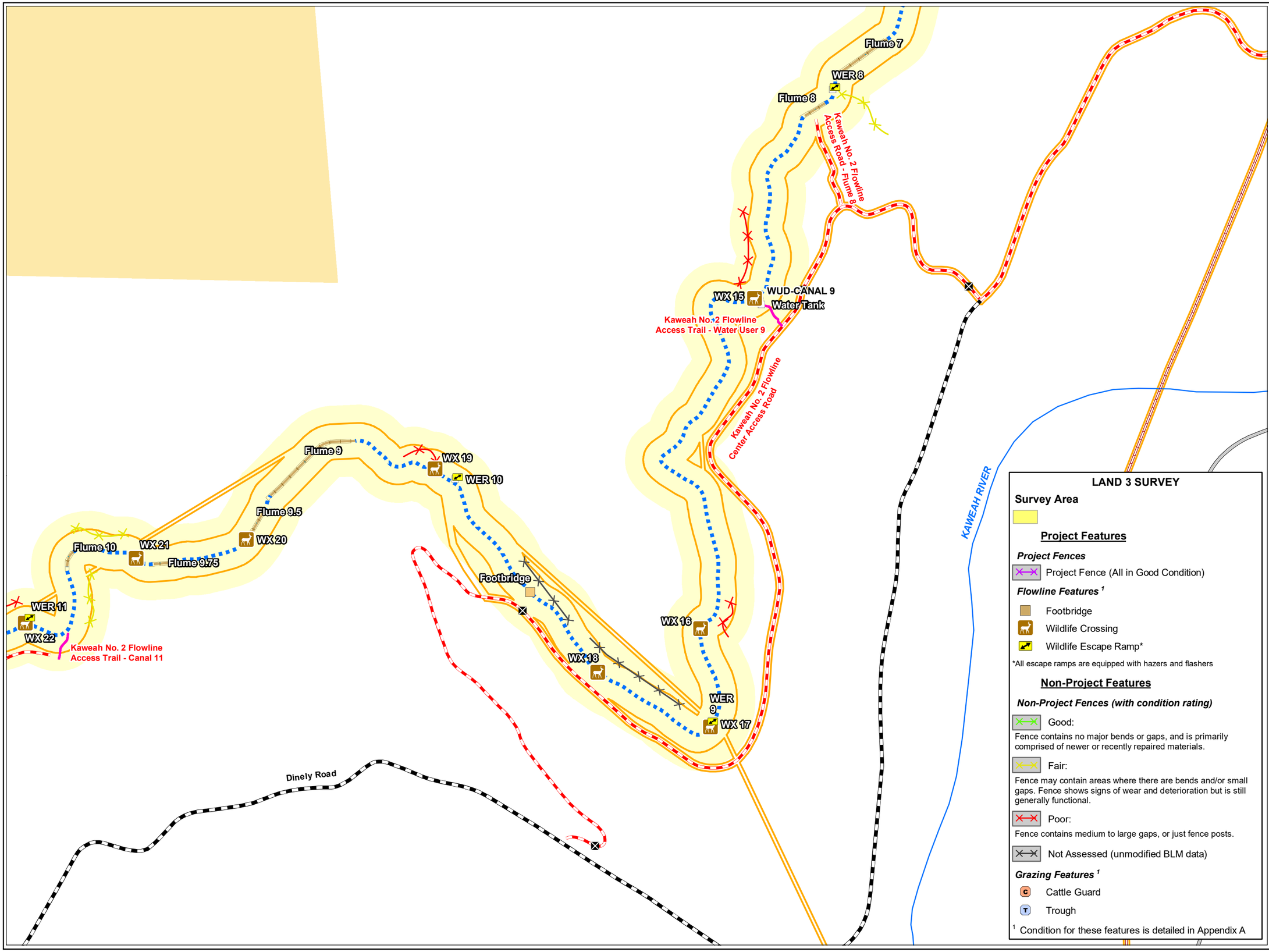

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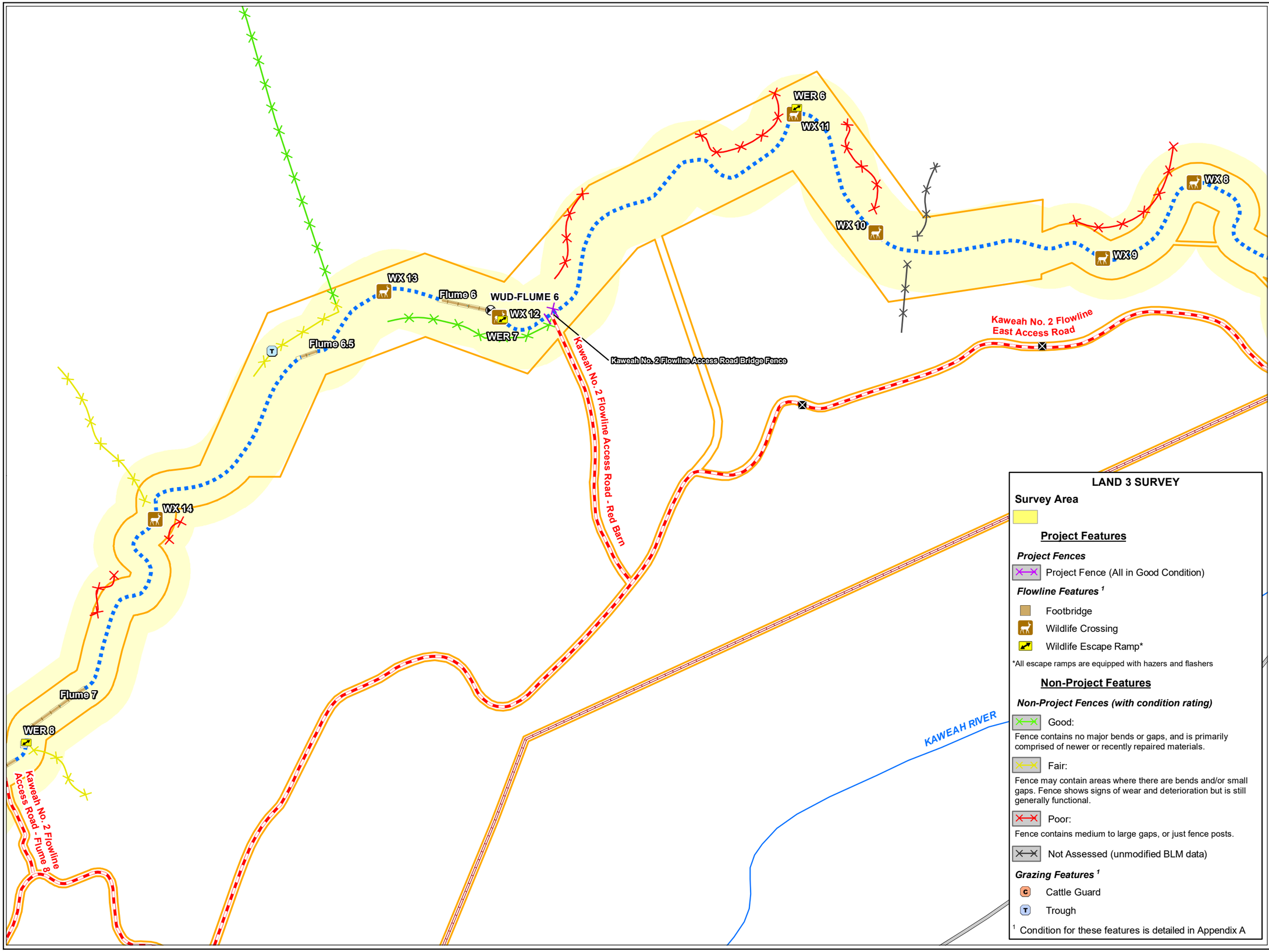


Facilities

- Powerhouse
- Diversion
- Flowline
- Elevated Flowline Segment
- Spillway Channel or Pipe
- Penstock
- Ancillary Facility
- Gage
- Transmission Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion

Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County

LAND 3 SURVEY

Survey Area

Project Features

Project Fences

- Project Fence (All in Good Condition)

Flowline Features [1]

- Footbridge
- Wildlife Crossing
- Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

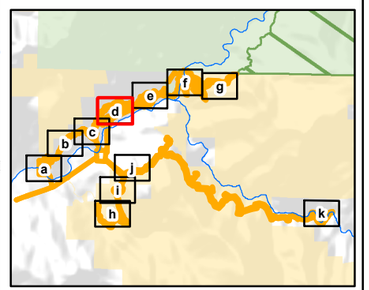
Non-Project Fences (with condition rating)

- Good:
  Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.
- Fair:
  Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.
- Poor:
  Fence contains medium to large gaps, or just fence posts.
- Not Assessed (unmodified BLM data)

Grazing Features [1]

- C Cattle Guard
- T Trough

[1] Condition for these features is detailed in Appendix A



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FERC Project No. 298

Map LAND 3-1d
Kaweah Project

0 125 250 Feet

Date: 11/21/2019

Projection: UTM Zone 11
Datum: NAD 83

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A

WER 1
WER 2
WER 3
WER 4
WER 5
WX 3
WX 4
WX 5
WX 6
WX 7
WUD-FLUME 5
Flume 2
Flume 3
Flume 3.5
Flume 4
Flume 5
Footbridge
Brushout Grid
Access Road Spur
Park Service Access Road
Kaweah No. 2 Flowline Access Trail - Canal 2 Brushout Grid
Kaweah No. 2 Flowline Access Trail - Canal 4 East
Kaweah No. 2 Flowline Access Trail - Canal 5
Kaweah No. 2 Flowline Access Trail - Canal 6
Kaweah No. 2 Flowline Access Road - Canal 4 East
Kaweah No. 2 Flowline Access Road - Canal 4 West
Kaweah No. 2 Flowline Access Road - Canal 5
Kaweah No. 2 Flowline Access Road - Canal 6 East
Kaweah No. 2 Flowline Access Road - Canal 6 West
KAWEAH RIVER
S198

Facilities

Powerhouse
Diversion
Flowline
Elevated Flowline Segment
Spillway Channel or Pipe
Penstock
Ancillary Facility
Gage
Transmission Line
FERC Boundary

Other Features

Watercourse
Water Body
Water User Diversion

Transportation

Project Road
Project Trail
Non-Project General Access Road
Gate

Land Jurisdiction*

Bureau of Land Management
Wilderness Area
National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County

a b c d e f g h i j k

SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map LAND 3-1e
Kaweah Project

N W E S

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/21/2019

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A

Kaweah No. 2 Diversion Dam
Kaweah No. 2 Intake Fence
Kaweah No. 3 Tailrace Channel Fence
Kaweah No. 3 Switchyard Perimeter Fence
Kaweah No. 2 Intake Road
K3 Switchyard
K2 Intake Repeater
Kaweah No. 3 Powerhouse
Kaweah No. 2 Flowline Control Gate Fence
Footbridge
Bridge
Kaweah No. 3 Powerhouse Road
K3 Penstock
Kaweah No. 2 Flowline
WX 1
Kaweah No. 2 Flowline Access Road - Open Siphon Grids
WX 2
Kaweah No. 2 Flowline Access Trail - Wildlife Crossing 2
Brushout Grid Footbridge
K2 Gaging Cableway
S198
Kaweah No. 3 Forebay Road
Park Service Access Road
Kaweah No. 2 Flowline Access Trail - Open Siphon
KAWEAH RIVER
Access Road Spur
Kaweah No. 2 Flowline Access Road - Canal 2
Footbridge
Kaweah No. 3 Fore

Facilities

Powerhouse
Diversion
Flowline
Elevated Flowline Segment
Spillway Channel or Pipe
Penstock
Ancillary Facility
Gage
Transmission Line
FERC Boundary

Other Features

Watercourse
Water Body
Water User Diversion

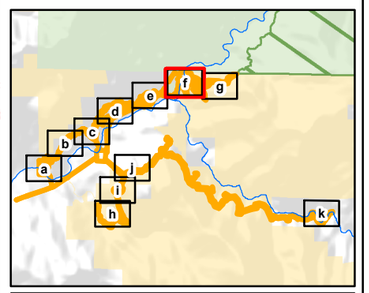
Transportation

Project Road
Project Trail
Non-Project General Access Road
Gate

Land Jurisdiction*

Bureau of Land Management
Wilderness Area
National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map LAND 3-1f
Kaweah Project

0 125 250 Feet

Date: 11/21/2019

Projection: UTM Zone 11
Datum: NAD 83

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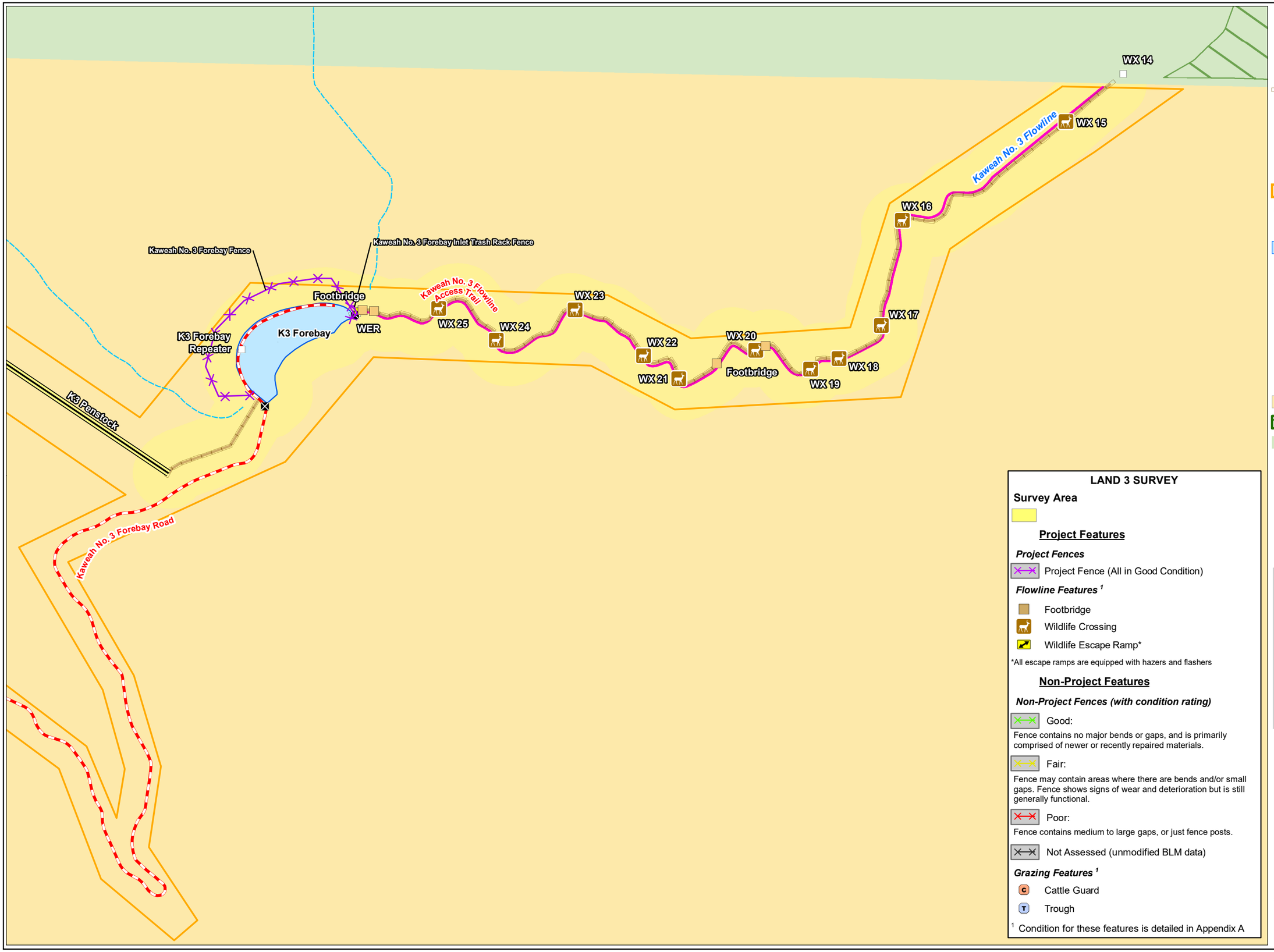


Facilities

- Powerhouse
- Diversion
- Flowline
- Elevated Flowline Segment
- Spillway Channel or Pipe
- Penstock
- Ancillary Facility
- Gage
- Transmission Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion

Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County

LAND 3 SURVEY

Survey Area

Project Features

Project Fences

- Project Fence (All in Good Condition)

Flowline Features [1]

- Footbridge
- Wildlife Crossing
- Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

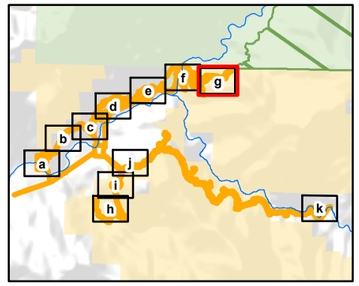
Non-Project Fences (with condition rating)

- Good: Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.
- Fair: Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.
- Poor: Fence contains medium to large gaps, or just fence posts.
- Not Assessed (unmodified BLM data)

Grazing Features [1]

- C Cattle Guard
- T Trough

[1] Condition for these features is detailed in Appendix A



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FERC Project No. 298

Map LAND 3-1g
Kaweah Project

Date: 11/21/2019

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

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Craig Ranch Road

Kaweah No. 1 Forebay Road

LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

Not Assessed (unmodified BLM data)

Grazing Features [1]

Cattle Guard

Trough

[1] Condition for these features is detailed in Appendix A

Facilities

Powerhouse

Diversion

Flowline

Elevated Flowline Segment

Spillway Channel or Pipe

Penstock

Ancillary Facility

Gage

Transmission Line

FERC Boundary

Other Features

Watercourse

Water Body

Water User Diversion

Transportation

Project Road

Project Trail

Non-Project General Access Road

Gate

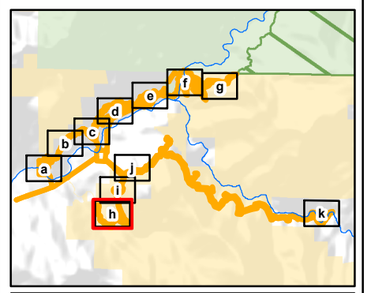
Land Jurisdiction*

Bureau of Land Management

Wilderness Area

National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



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FERC Project No. 298

Map LAND 3-1h
Kaweah Project

Date: 11/21/2019

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A

Kaweah No. 7 Forebay Road

Facilities

- Powerhouse
- Diversion
- Flowline
- Elevated Flowline Segment
- Spillway Channel or Pipe
- Penstock
- Ancillary Facility
- Gage
- Transmission Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion

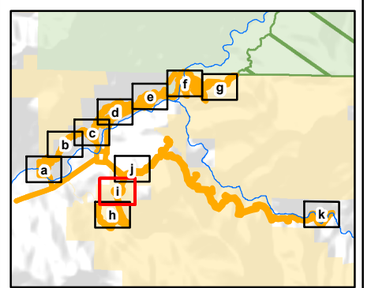
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



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FERC Project No. 298

Map LAND 3-1i
Kaweah Project

0 125 250 Feet

Date: 11/21/2019

Projection: UTM Zone 11
Datum: NAD 83

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A

K1 Penstock

Kaweah No. 1 Flowline

K1 Forebay Tank

K1 Forebay Tank Repeater

Facilities

Powerhouse

Diversion

Flowline

Elevated Flowline Segment

Spillway Channel or Pipe

Penstock

Ancillary Facility

Gage

Transmission Line

FERC Boundary

Other Features

Watercourse

Water Body

Water User Diversion

Transportation

Project Road

Project Trail

Non-Project General Access Road

Gate

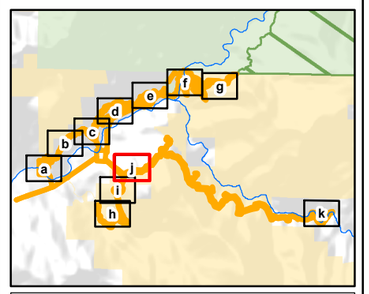
Land Jurisdiction*

Bureau of Land Management

Wilderness Area

National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map LAND 3-1j
Kaweah Project

Date: 11/21/2019

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

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LAND 3 SURVEY

Survey Area

Project Features

Project Fences

Project Fence (All in Good Condition)

Flowline Features [1]

Footbridge

Wildlife Crossing

Wildlife Escape Ramp*

*All escape ramps are equipped with hazers and flashers

Non-Project Features

Non-Project Fences (with condition rating)

Good:

Fence contains no major bends or gaps, and is primarily comprised of newer or recently repaired materials.

Fair:

Fence may contain areas where there are bends and/or small gaps. Fence shows signs of wear and deterioration but is still generally functional.

Poor:

Fence contains medium to large gaps, or just fence posts.

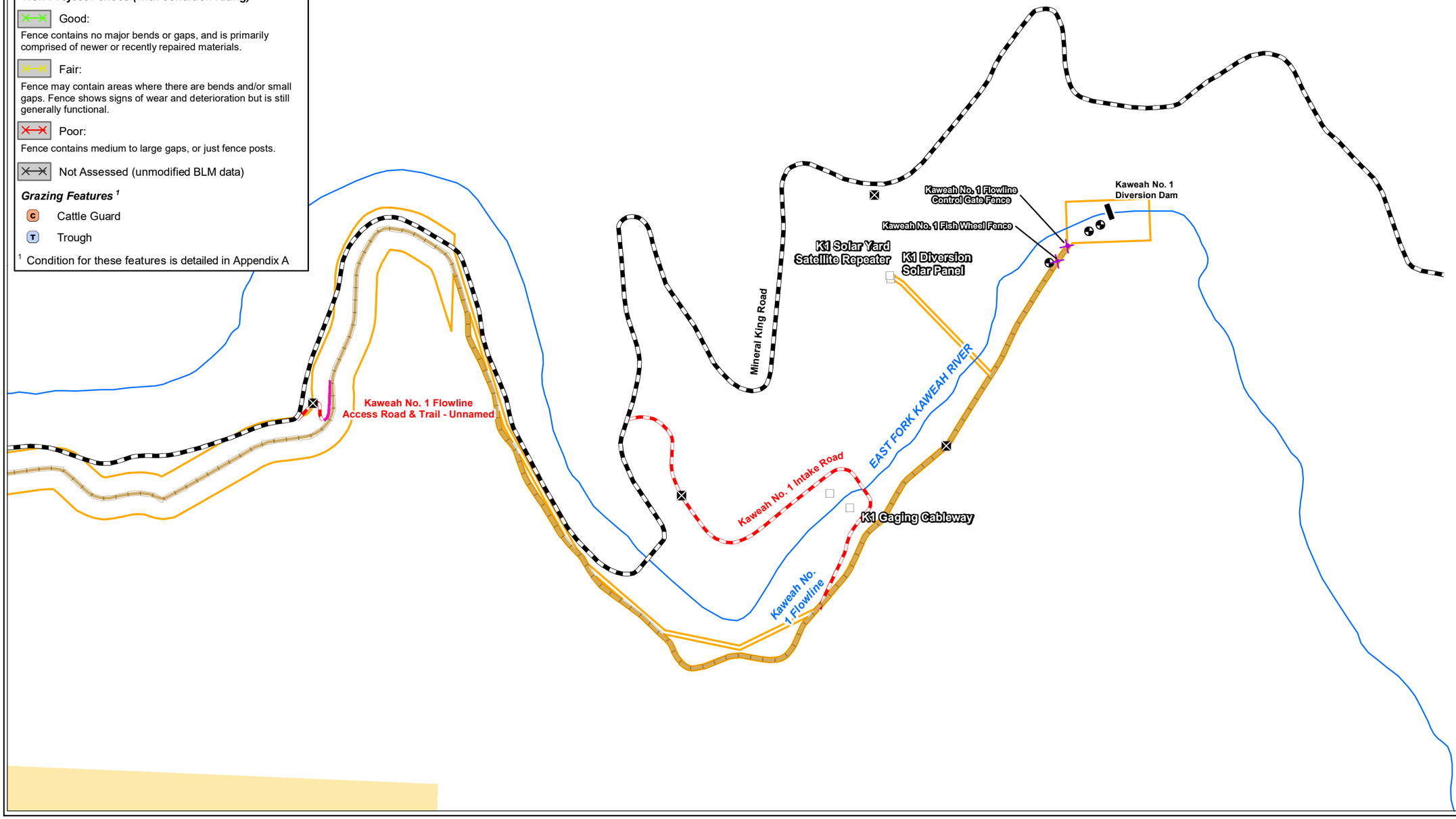
Not Assessed (unmodified BLM data)

Grazing Features [1]

C Cattle Guard

T Trough

[1] Condition for these features is detailed in Appendix A



Facilities

- Powerhouse
- Diversion
- Flowline
- Elevated Flowline Segment
- Spillway Channel or Pipe
- Penstock
- Ancillary Facility
- Gage
- Transmission Line
- FERC Boundary

Other Features

- Watercourse
- Water Body
- Water User Diversion

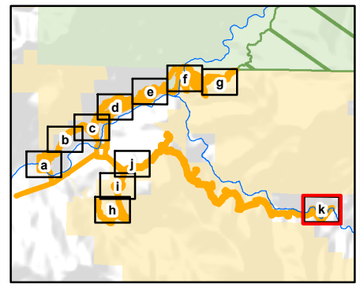
Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County



SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map LAND 3-1k
Kaweah Project

0 125 250 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 11/21/2019

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APPENDIX A

Project Wildlife Protection and Public Safety Features Inventory and Assessment Summary

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Appendix A. Project Wildlife Protection and Public Safety Feature Inventory and Assessment Summary

Feature	Comments	Condition	Photo Number	UTM E	UTM N
Kaweah No. 2 Flowline					
other safety	last-chance safety line	Good	Photo 10819	335521.7160	4039440.7560
other safety	handrail on rock	Good	Photo 1536	335508.4699	4039420.0628
signage	SCE warning sign	Good	NA	335503.6972	4039412.5331
signage	SCE warning sign, post not in ground	Fair	Photo 1541	335501.9948	4039410.1536
other safety	fencing/grate	Good	Photo 1540	335491.9971	4039399.7463
footbridge		Good	Photos 1544 and 1545	335449.0689	4039366.6397
signage	SCE warning sign	Good	Photo 1545	335449.0689	4039366.6397
bridge	bridge across flowline	Good	Photos 1547 and 1548	335448.6169	4039328.4741
wildlife crossing (WX 1)		Good	Photo 1549	335447.4805	4039272.8868
escape fencing		Good	NA	335418.5703	4039219.9330
wildlife crossing (WX 2)		Good	Photo 1550	335416.2150	4039222.4992
brush out grid	grate	Good	Photo 1552	335394.7641	4039188.0888
footbridge		Good	Photos 1551 and 1552	335394.5771	4039187.4662
escape fencing		Good	Photos 1473 and 1474	335209.5772	4038767.2528
footbridge		Good	Photos 1473 and 1474	335207.9243	4038769.6838
signage	SCE warning sign	Good	Photo 1474	335207.8109	4038771.1249
escape fencing		Good	Photo 1474	335207.8109	4038771.1249
hazer		Good	Photo 1475	335014.3905	4038783.8352
escape fencing		Good	Photo 1475	335014.3905	4038783.8352
footbridge		Good	Photo 1477	334973.5694	4038801.6636
debris catcher		Good	Photo 1477	334973.5694	4038801.6636
wildlife escape ramp (WER 1)		Good	Photo 1478	334951.3585	4038811.2572
flasher/hazer combo		Good	Photo 1478	334949.6395	4038812.6265
wildlife crossing (WX 3)		Good	Photo 1484	334732.8087	4038833.1891

Feature	Comments	Condition	Photo Number	UTM E	UTM N
escape fencing		Good	NA	334732.6902	4038830.5448
hazer		Good	Photo 1487	334650.2839	4038832.2411
escape fencing		Good	Photo 1487	334650.2839	4038832.2411
wildlife crossing (WX 4)		Good	Photo 1490	334626.8499	4038729.6416
escape fencing		Good	Photo 1490	334626.8499	4038729.6416
escape fencing		Good	NA	334626.6971	4038728.6713
wildlife escape ramp (WER 2)		Good	Photo 1492	334589.9877	4038773.9544
flashers		Good	Photo 1492	334586.8543	4038770.0608
flashers		Good	Photo 1495	334541.2586	4038871.9825
wildlife escape ramp (WER 3)		Good	Photo 1495	334531.3853	4038879.3881
escape fencing		Good	NA	334425.1603	4038781.3643
wildlife crossing (WX 5)		Good	Photo 1499	334424.7574	4038782.8886
escape fencing		Good	Photo 1499	334424.7574	4038782.8886
other Safety	cable on rock	Good	Photo 1500	334372.5673	4038753.3531
hazer		Good	Photo 1501	334319.6399	4038747.1622
escape fencing		Good	Photo 1501	334319.6399	4038747.1622
escape fencing		Good	NA	334319.6399	4038747.1622
wildlife escape ramp (WER 4)		Good	NA	334309.2113	4038715.9576
wildlife crossing (WX 6)		Good	Photo 1505	334240.7230	4038551.6628
escape fencing		Good	Photo 1505	334240.7230	4038551.6628
wildlife crossing (WX 7)		Good	NA	334126.8628	4038481.5493
wildlife escape ramp (WER 5)		Good	Photo 1506	334119.8751	4038529.5848
hazer	hazer with rope	Good	Photo 1506	334117.9577	4038521.5606
other safety	Grab line across flowline	Good	Photo 1506	334117.9577	4038521.5606
wildlife crossing (WX 8)		Good	NA	334040.9340	4038591.5996
flashers		Good	NA	333970.0478	4038530.7600

Feature	Comments	Condition	Photo Number	UTM E	UTM N
wildlife crossing (WX 9)		Good	NA	333969.8402	4038532.8202
escape fencing		Good	NA	333925.1205	4038538.3096
escape fencing		Good	NA	333916.8518	4038540.5906
escape fencing		Good	NA	333905.2359	4038543.9110
wildlife crossing (WX 10)		Good	NA	333793.3157	4038552.4979
wildlife escape ramp (WER 6)		Good	Photo 1508	333730.0902	4038648.2242
flasher/hazer combo		Good	Photo 1508	333729.9410	4038644.6324
wildlife crossing (WX 11)		Good	Photo 1508	333729.9410	4038644.6324
escape fencing		Good	Photo 1508	333729.9410	4038644.6324
escape fencing		NA	NA	333697.4278	4038603.5810
flashers		Good	NA	333650.5521	4038607.4871
escape fencing		Good	NA	333650.5521	4038607.4871
bridge crossing with fencing		Good	Photo 1510	333545.5947	4038489.1499
signage	SCE warning signs	Good	Photo 1510	333545.5947	4038489.1499
escape fencing		Good	NA	333539.6578	4038487.0995
bridge crossing with fencing		Good	Photo 1511	333539.6578	4038487.0995
signage	SCE warning signs	Good	Photo 1511	333539.6578	4038487.0995
wildlife escape ramp (WER 7)		Good	Photo 1513	333501.1231	4038483.6084
wildlife crossing (WX 12)		Good	Photo 1513	333500.6462	4038488.2836
flasher/hazer combo	flashers/hazers	Good	Photo 1513	333500.6462	4038488.2836
wildlife crossing (WX 13)		Good	NA	333410.7780	4038507.1516
wildlife crossing (WX 14)		Good	NA	333232.9154	4038329.6744
escape fencing		Good	NA	333219.3128	4038269.7924
escape fencing		Good	NA	333204.9082	4038263.8252
escape fencing		Good	NA	333184.5478	4038203.4550
escape fencing		Good	NA	333178.1936	4038197.6616

Feature	Comments	Condition	Photo Number	UTM E	UTM N
escape fencing		Good	NA	333134.4900	4038162.9833
wildlife escape ramp (WER 8)		Good	NA	333130.6369	4038154.5306
wildlife crossing (WX 15)		Good	NA	333063.0510	4037973.8820
escape fencing		Good	NA	333035.2009	4037945.6499
escape fencing		Good	NA	333034.1145	4037621.2456
escape fencing		Good	NA	333032.1138	4037615.4190
escape fencing		Good	NA	333027.9367	4037971.2239
escape fencing		Good	NA	333027.2073	4037696.0122
wildlife escape ramp (WER 9)		Good	NA	333024.9964	4037606.5207
wildlife crossing (WX 17)		Good	NA	333024.9964	4037603.6288
wildlife crossing (WX 16)		Good	NA	333016.5970	4037688.3706
escape fencing		Good	NA	332984.5044	4037834.7703
wildlife crossing (WX 18)		Good	Photo 1514	332927.7589	4037650.9684
escape fencing		Good	NA	332927.0874	4037649.4275
escape fencing		Good	NA	332897.0247	4037690.5476
footbridge		Good	Photo 1516	332869.2933	4037719.9285
escape fencing		Good	NA	332845.1055	4037750.4804
escape fencing		Good	NA	332836.5078	4037761.1279
escape fencing		Fair	Photo 1517	332813.0854	4037785.9761
wildlife escape ramp (WER 10)		Good	NA	332804.4618	4037817.6577
other safety	wooden plank across flowline	Good	Photo 1519	332804.0122	4037812.2106
wildlife crossing (WX 19)		Good	NA	332787.1230	4037826.6848
escape fencing		Good	NA	332768.1548	4037830.4067
escape fencing		Good	NA	332625.8273	4037765.7890
wildlife crossing (WX 20)		Good	NA	332624.0734	4037765.7269
wildlife crossing (WX 21)		Good	NA	332528.5963	4037749.3231

Feature	Comments	Condition	Photo Number	UTM E	UTM N
wildlife escape ramp (WER 11)		Good	NA	332434.7953	4037696.0674
wildlife crossing (WX 22)		Good	NA	332432.9796	4037693.2382
footbridge		Fair	NA	332395.6707	4037683.3554
escape fencing		Good	NA	332391.5907	4037682.0681
wildlife crossing (WX 23)		Fair	NA	332264.7484	4037508.7950
wildlife escape ramp (WER 12)		Good	NA	332180.2739	4037394.0955
footbridge		Good	NA	331896.0355	4037038.6260
footbridge		N/A	NA	331808.2652	4037026.0100
debris catcher		Good	Photo 1521	331759.3609	4037010.9197
Kaweah No. 3 Flowline					
wildlife crossing (WX 15)		Good	NA	336904.4201	4039366.6316
wildlife crossing (WX 16)		Fair	NA	336762.8434	4039281.2049
wildlife crossing (WX 17)		Good	NA	336744.8724	4039190.4250
wildlife crossing (WX 18)		Good	NA	336708.0847	4039162.0638
wildlife crossing (WX 19)		Good	NA	336683.5391	4039152.8805
footbridge		Good	NA	336644.6453	4039172.9428
wildlife crossing (WX 20)		Good	NA	336636.3975	4039169.1911
footbridge		Good	NA	336602.5348	4039157.5821
wildlife crossing (WX 21)		Good	NA	336569.7057	4039144.5980
wildlife crossing (WX 22)		Good	NA	336539.3640	4039164.4678
wildlife crossing (WX 23)		Good	NA	336480.1805	4039204.1190
wildlife crossing (WX 24)		Good	NA	336412.1034	4039177.9248
wildlife crossing (WX 25)		Good	NA	336362.3176	4039205.1420
footbridge		Good	NA	336306.2503	4039202.9172
footbridge		Good	NA	336296.3751	4039203.8197

Feature	Comments	Condition	Photo Number	UTM E	UTM N
debris catcher		Good	Photo 17	336622.6377	4039172.6997
signage	warning sign on bridge	Good	Photos 23 and 2	336296.3750	4039202.8200
flashers		Good	Photos 23 and 2	336294.9318	4039201.7977

NA = Not applicable

APPENDIX B

Representative Photographs of Project Features and Fences

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Photo B-1. **Kaweah No. 2 Flowline, footbridge with warning sign in foreground and escape fencing in background, all in good condition. Photo taken on May 10, 2018.**

Photo B-2. **Kaweah No. 2 Flowline, escape ramp, hazer, and flasher, all in good condition. Photo taken on May 10, 2018.**

Photo B-3. **Kaweah No. 2 Flowline, wildlife bridge and escape fencing, good condition Photo taken May 10, 2018.**

Photo B-4. **Kaweah No. 2 Flowline, escape fencing, fair condition. Photo taken May 10, 2018.**

Photo B-5. **Kaweah No. 2 Flowline, warning sign, fair condition; wooden planks on walkway, good condition. Photo taken May 30, 2018.**

Photo B-6. **Signage on Kaweah Flowline No. 2 Access Road Bridge Fence Photo taken May 10, 2018. Note that the fence on the left side of the photo is a non-Project fence.**

Photo B-7. **Kaweah No. 1 Fish Wheel Fence. Photo taken April 17, 2018.**

Photo B-8. **Kaweah No. 1 Flowline Control Gate Fence with warning signage. Photo taken April 17, 2018.**

Photo B-9. **Kaweah No. 1 Switchyard Perimeter Fence. Photo taken April 17, 2018.**

Photo B-10. **Kaweah No. 1 Powerhouse Campus Fence (in middle ground between road and grass/building). Photo taken April 17, 2018.**

Photo B-11. Kaweah No. 2 Intake Fence. Photo taken April 17, 2018.

Photo B-12. Kaweah No. 2 Forebay Fence. Photo taken May 8, 2018.

Photo B-13. Kaweah No. 2 Powerhouse Perimeter Fence. Photo taken April 17, 2018.

Photo B-14. Kaweah No. 2 Switchyard Perimeter Fence. Photo taken April 17, 2018.

Photo B-15. Kaweah No. 2 Tailrace Channel Fence. Photo taken April 17, 2018.

Photo B-16. Kaweah No. 2 Flowline Control Gate Fence. Photo taken April 17, 2018.

Photo B-17. **Kaweah No. 2 Flowline Access Road Bridge Fence (on both sides of bridge crossing). Photo taken May 10, 2018.**

Photo B-18. **Kaweah No. 3 Forebay Inlet Trash Rack Fence. Photo taken April 17, 2018.**

Photo B-19. **Kaweah No. 3 Switchyard Perimeter Fence with warning signage. Photo taken April 17, 2018.**

Photo B-20. **Kaweah No. 3 Tailrace Channel Fence with warning signage. Photo taken April 17, 2018.**

APPENDIX C

Representative Photographs of Non-Project Features and Fences

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Photo C-1. **Non-Project fencing with gate along the Kaweah No. Flowline. Photo taken May 10, 2018.**

Photo C-2. **Non-Project fence along the Kaweah No. 2 Flowline, fence in fair condition. Photo taken on May 10, 2018.**

Photo C-3. **Poor condition cattle guard (lower left) and fair condition non-Project fence on the Kaweah No. 1 Forebay Road (Photo taken on May 31, 2018).**

Photo C-4. **Poor condition fence along the Kaweah No. 2 Flowline. Photo taken on November 11, 2018.**

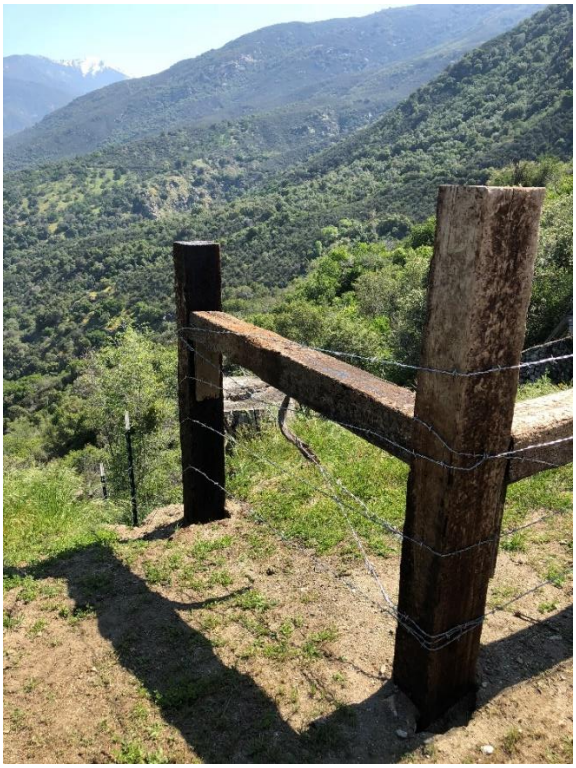

Photo C-5. **Non-Project fence down slope of the Kaweah No. 3 Forebay. The wood posts in the form ground form the corner termination of the fence line. Photo taken on May 10, 2018.**

Photo C-6. **Concrete structure found along the Kaweah No. 2 Flowline at the location provided by the BLM. Photo taken on May 31, 2018.**

Photo C-7. Concrete structure found along the Kaweah No. 2 Flowline at the location provided by the BLM. Photo taken on May 31, 2018.