SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

Final LICENSE APPLICATION

VOLUME I

SOUTHERN CALIFORNIA EDISON

An EDISON INTERNATIONAL Company

June 2022

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Initial Statement and General Content

Before the
United States of America
Federal Energy Regulatory Commission

Bishop Creek Hydroelectric Project
FERC Project No. 1394

Application for New License
For Major Project – Existing Dam

Initial Statement and
General Content Under 18 CFR § 5.18(a)

Section 5.18(a)(5)(iii) of Title 18 of the Code of Federal Regulations (CFR) refers to Section 4.51 (License for Major Project – Existing Dam) for a description of information that an applicant must include in the initial statement of its license application.

Initial Statement under 18 CFR § 4.51(a)

1. *§4.51(a)(1).* Southern California Edison Company ("Licensee" or "SCE") applies to the Federal Energy Regulatory Commission ("FERC") for a new license for the Bishop Creek Hydroelectric Project ("Bishop Creek Project"), as described in the attached exhibits. The Bishop Creek Project is licensed to SCE as FERC Project No. 1394, by Order dated July 19, 1994 (68 FERC ¶ 62,058).

2. *§4.51(a)(2).* The location of the Bishop Creek Project is:

State:	California
County:	Inyo
City or Town:	Bishop
Stream or other body of water:	Bishop Creek; Birch Creek; Green Creek; and McGee Creek

3. *§4.51(a)(3).* The exact name and business address of the applicant are:

Southern California Edison Company
1515 Walnut Grove Ave.
Rosemead, CA 91770
Telephone: (626) 302-9596

The exact name and business address of each person authorized to act as agent for the applicant in this application are:

Wayne Allen, Principal Manager
Regulatory Support Services
Southern California Edison Company
1515 Walnut Grove Ave., Rosemead, CA 91770
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Southern California Edison Company
2244 Walnut Grove Ave., Rosemead, CA 91770
Phone: (626) 302-4411
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4. *§4.51(a)(4).* SCE is a public utility corporation incorporated in the State of California and does business in central, coastal, and southern California. SCE is not claiming municipal preference under Section 7(a) of the Federal Power Act ("FPA"), 16 U.S.C. § 800 (United States Code). SCE is claiming preference as the incumbent licensee under Section 15(a)(2) of the FPA, 16 U.S.C. § 808(a)(2).

5. *§4.51(a)(5)(i).* The statutory or regulatory requirements of the State of California, the state in which the Bishop Creek Project is located, which would, assuming jurisdiction and applicability, affect the Bishop Creek Project with respect to bed and banks, and to the appropriation, diversion, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power, and in any other business necessary to accomplish the purposes of the license under the FPA are:

    a. *California Fish and Game Code §1602* – requires that parties notify the California Department of Fish and Wildlife (CDFW) prior to conducting any work in a streambed.
    b. *California Fish and Game Code §5937* – requires that the owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam.
    c. *California Water Code §102* – allows for appropriation and use of water for power purposes.

d. *California Water Code §13160* – regulates the federally required filing of applications for water quality certification with the State Water Board, pursuant to Section 401 of the federal Clean Water Act, 33 U.S.C. § 1341.
e. *Public Utilities Code §201, et seq.* – regulates the right of the public utility to produce, generate, transmit, or furnish power to the public.
f. *Public Resource Code §3000, et seq.* – regulates activities that may affect the coastal zone pursuant to the federal Coastal Zone Management Act, 16 U.S.C § 1451, *et seq.*

6. *§4.51(a)(5)(ii).* The steps the applicant has taken, or plans to take, to comply with each of the laws cited above are:

   a. The Applicant will submit a §1602 Notification to CDFW should work in a streambed be required.
   b. The Applicant has provided necessary instream flows as required under the license to keep in good condition any fish that may be planted or exist below the dam and proposed measures are consistent with this requirement.
   c. The Applicant has the water rights necessary to operate the Bishop Creek Project.
   d. In compliance with FERC's regulations at 18 C.F.R. § 5.23(b), the Applicant will request a water quality certification, including proof of the date on which the certifying agency received the request, no later than 60 days following FERC's issuance of the Notice of Acceptance and Ready for Environmental Analysis (REA).
   e. The California Public Utilities Commission has authorized SCE to produce, generate, transmit, or furnish power to the public.
   f. By email dated April 25, 2022, the California Coastal Commission staff agreed that relicensing of the Bishop Creek Project is not located within the California coastal zone and that its operation does not affect coastal resources (included as part of the Consultation Record, Appendix A to Exhibit E). The Commission staff determined that SCE has met its federal Coastal Zone Management Act responsibilities. Therefore, the Bishop Creek Project does not require a constancy determination.

7. *§4.51(a)(6).* All existing Bishop Creek Project facilities are owned by:

   Southern California Edison Company
   1515 Walnut Grove Ave.
   Rosemead, CA 91770

   There are no federal facilities associated with the Bishop Creek Project.

General Content Required Pursuant to 18 CFR § 5.18(a)

1. *§5.18 (a)(1).* SCE possesses all proprietary rights necessary to construct, operate, and maintain the Bishop Creek Project. No other entity holds these rights.

2. *§5.18 (a)(2)(i).* The name and mailing addresses of the counties in which any part of the Bishop Creek Project and any Federal facilities that would be used by the Bishop Creek Project are located.

   Inyo County
   168 North Edwards Street
   Independence, CA 93526

   There are no federal facilities used by the Bishop Creek Project.

3. *§5.18 (a)(2)(ii)(A).* The name and mailing address of every city, town, or similar local political subdivision in which any part of the Bishop Creek Project and any Federal facilities that would be used by the Bishop Creek Project are located.

   The Bishop Creek Project is not located within any city or town.

   There are no federal facilities used by the Bishop Creek Project.

4. *§5.18 (a)(2)(ii)(A) and (B).* The name and mailing address of every city, town, or similar local political subdivision in which any part of the project, and any Federal facilities that would be used by the project would be located, or that has a population of 5,000 or more people and is located within 15 miles of the Project dam:

   City of Bishop
   377 West Line Street
   Bishop, CA 93514

   There are no federal facilities used by the Bishop Creek Project.

5. *§5.18 (a)(2)(iii)(A) and (B).* The name and mailing address of each irrigation district, drainage district, or similar special purpose political subdivisions in which any part of the Bishop Creek Project is located:

   There are no irrigation districts, drainage districts, or similar special purpose political subdivisions in which any part of the Bishop Creek Project is located.

6. *§5.18 (a)(2)(iv).* The Applicant has reason to believe the following other political subdivisions in the general area of the Bishop Creek Project would likely be interested in or affected by the Application.

City of Bishop, Department of Public Works
377 West Line Street, P.O Box 1236, Bishop, CA 93514

Los Angeles Department of Water and Power
300 Mandich Street,
Bishop, CA 93514

Inyo County Water Department
Aaron Steinwand
135 South Jackson Street
Independence, CA 93526

Inyo-Mono Resource Conservation District
270 North See Vee Lane
#6
Bishop, CA 93514-9624

County Supervisor-District 1
215 Arcturis Circle
Bishop, CA 93514
Dan Totheroh

County Supervisor - District 4
P.O. Drawer N
Independence, CA 93526

County Supervisor-District 3
P. O. Box 128
Bishop, CA 93514
Rick Pucci

County Supervisor - District 2
199 Edward Street
Bishop, CA 93514
Jeff Griffiths

Water & Sewer Commission
377 West Line Street
Bishop, CA 93514

7. *§5.18 (a)(2)(v).* The name and mailing addresses of each Federally recognized Native American tribe potentially affected by the Bishop Creek Project:
8.

Bishop Paiute Tribe
50 Tu Su Lane
Bishop, CA 93514

Big Pine Paiute Tribe of Owens Valley
P.O. Box 700
Big Pine, CA 93513

Bridgeport Paiute Indian Colony
P.O. Box 37
Bridgeport, CA 93517

Timbisha Shoshone Tribe
P.O. Box 1779
Bishop, CA 93515

Fort Independence Indian Community of Paiute Indians
P.O. Box 67
Independence, CA 93526

Lone Pine Paiute-Shoshone Tribe
P.O. Box 747
Lone Pine, CA 93545

Utu Utu Gwaitu Paiute Tribe of the
Benton Paiute Reservation
25669 Highway 6
Benton, CA 93512

North Fork Mono Tribe
13396 Tollhouse Road
Clovis, CA 93619

North Fork Rancheria of Mono Indians
of California
PO Box 869
North Fork, CA 93643

Walker River Paiute Tribe
P.O. Box 220
Schurz, NV 89427

9. *§5.18 (a)(3)*. Because this Application is for a new license under Section 15 of the FPA, the reporting requirements of 18 C.F.R. 5.18(a)(3) do not apply.

10. *§5.18(4).* The executed subscription and verification under oath appears below.

11. *§5.18(a)(5)(iii).* This application contains the information and documents prescribed for a license for a major project, existing dam, as outlined in *§4.51*

12. *§5.18(a)(5)(iv).* SCE is not seeking benefits under Public Utility Regulatory Policies Act.

SUBSCRIPTION

[To be executed for Final License Application]

This Application for New License for the Bishop Creek Hydroelectric Project, FERC Project No. 1394, is executed in the:

State of California

County of Orange

By: Wayne Allen
Southern California Edison Company
1515 Walnut Grove Avenue
Rosemead, CA 91770

being duly sworn, deposes and says that the contents of this application are true to the best of his knowledge or belief. The undersigned Applicant has signed this application on this 15 day of June, 2022.

SOUTHERN CALIFORNIA EDISON COMPANY

By: Wayne Allen

Wayne Allen
Principal Manager
Regulatory Support Services
Southern California Edison Company

VERIFICATION

Subscribed and sworn to before me, a Notary Public of the State of California, this 15 day of June, 2022.

see attached

(Notary Public)

JURAT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of orange

Subscribed and sworn to (or affirmed) before me on this 15 day of June,

2022 by Wayne Allen,

proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

MATTHEW HSING
Notary Public - California
Orange County
Commission # 2405639
My Comm. Expires May 25, 2026

Signature (Seal)

OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

verification
(Title or description of attached document)

(Title or description of attached document continued)

Number of Pages _____ Document Date_____

Additional information

INSTRUCTIONS

The wording of all Jurats completed in California after January 1, 2015 must be in the form as set forth within this Jurat. There are no exceptions. If a Jurat to be completed does not follow this form, the notary must correct the verbiage by using a jurat stamp containing the correct wording or attaching a separate jurat form such as this one with does contain the proper wording. In addition, the notary must require an oath or affirmation from the document signer regarding the truthfulness of the contents of the document. The document must be signed AFTER the oath or affirmation. If the document was previously signed, it must be re-signed in front of the notary public during the jurat process.

- State and county information must be the state and county where the document signer(s) personally appeared before the notary public.
- Date of notarization must be the date the signer(s) personally appeared which must also be the same date the jurat process is completed.
- Print the name(s) of the document signer(s) who personally appear at the time of notarization.
- Signature of the notary public must match the signature on file with the office of the county clerk.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different jurat form.
    - ❖ Additional information Is not required but could help to ensure this jurat is not misused or attached to a different document.
    - ❖ Indicate title or type of attached document, number of pages and date.
- Securely attach this document to the signed document with a staple.

Southern California Edison
Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT A
FINAL LICENSE APPLICATION

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT A

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June2022

Support from:

Kleinschmidt

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ACRONYMS

A

AVM	acoustic velocity meter

C

CEII	critical infrastructure information
CFR	Code of Federal Regulations
cfs	cubic feet per second

F

FERC	Federal Energy Regulatory Commission (FERC)

H

H	horizontal

K

kV	kilovolt
KW	kilowatt

M

mm	millimeters
msl	mean sea level
MW	megawatt

P

Project	Bishop Creek Hydroelectric Project
PVC	polyvinyl chloride

S

SCE	Southern California Edison Company

Exhibit A
Description of Project

Section 5.18(a)(5)(iii) of Title 18 of the Code of Federal Regulations (CFR) and Section 4.51(b) (License for Major Project – Existing Dam) include a description of information that an applicant must include in Exhibit A of its license application.

Exhibit A is a description of the project. This exhibit need not include information on project works maintained and operated by the U.S. Army Corps of Engineers, the Bureau of Reclamation, or any other department or agency of the United States, except for any project works that are proposed to be altered or modified. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. The description for each development must contain:

1) The physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces, or other structures, whether existing or proposed, to be included as part of the project;
2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity and usable storage capacity of any impoundments to be included as part of the project;
3) The number, type, and rated capacity of any turbines or generators, whether existing or proposed, to be included as part of the project;
4) The number, length, voltage, and interconnections of any primary transmission lines, whether existing or proposed, to be included as part of the project [see 16 U.S.C. 796(11)];
5) The specifications of any additional mechanical, electrical, and transmission equipment appurtenant to the project; and
6) All lands of the United States that are enclosed within the project boundary described under each paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of the lands of the United States within the project boundary.

1.0 INTRODUCTION

Southern California Edison Company (SCE) is the licensee, owner, and operator of the Bishop Creek Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) Project No. 1394, located on Bishop Creek near the community of Bishop in Inyo County, California. Project facilities are located within the Inyo National Forest and the John Muir Wilderness (managed by the U.S. Forest Service), the Project also includes lands managed by Bureau Land Management and privately managed lands. The Bishop Creek Project consists of five developments: Power Plants 2 through 6 on the Middle Fork of Bishop Creek, including three primary storage reservoirs South Lake, Lake Sabrina, and Longley Lake. The Project also utilizes diversions and flowlines that collect water from Green Creek (a tributary to Bishop Creek), Birch Creek, and McGee Creek. SCE currently operates the Project under a 30-year license issued by FERC on July 19, 1994. Because the current license will expire on June 30, 2024, SCE seeks a license renewal to continue operation and maintenance of the Project. A general location map is shown in Figure 1.1-1 below.

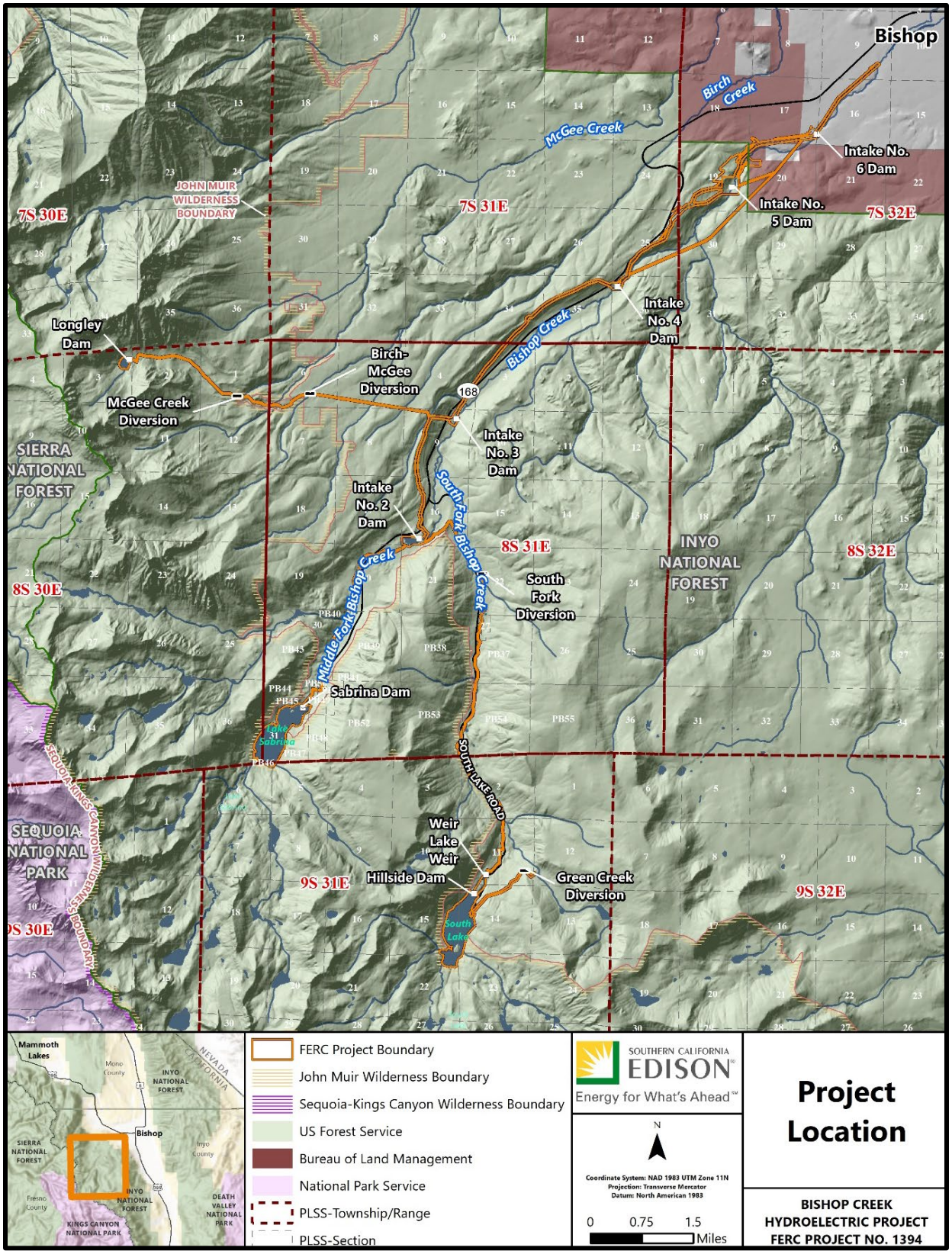

Figure 1.1-1. Project Facilities Locations.

2.0 DAMS AND DIVERSIONS

As required by Federal Power Act regulations 18 CFR §4.51(b)(1), the following section describes the physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces, or other structures, whether existing or proposed, to be included as part of the Project.

2.1. GREEN CREEK DIVERSION

The Green Creek Diversion is located 0.8 mile east northeast of the Hillside dam (South Lake) spillway. The head gate is a wooden structure, 3-feet-long by 2-feet-high, located approximately 80-feet-downstream from Bluff Lake on Green Creek. The head gate diverts water into an open channel approximately 1,400-feet in length to the Green Creek diversion intake. The diversion is earth and rockfill, located at elevation 10,264 feet[1], approximately 51-feet-along the crest and 9-feet-above the streambed. The diversion is equipped with a 12.5-foot-wide by 1-foot-deep spillway. The intake consists of a 16-inch-diameter steel pipe with a slide gate and a trash rack. A 16-inch-diameter drainpipe passes through the concrete intake chamber. The outlet is a 16-inch-diameter steel pipe, approximately 4750-feet-long, which extends into a natural channel, 1150-feet in length, and carries water to South Lake.

The Green Creek Diversion has been out of service since October 2008, with the drain gate locked since that time. SCE intends to return this diversion to service pursuant to the existing water right for power use[2].

2.2. SOUTH FORK DIVERSION

The South Fork diversion is located approximately 1.8 miles south of its confluence with the Middle Fork Bishop Creek. The diversion is earth and rockfill with a crest elevation at 8,211 feet, crest length of approximately 65 feet, and crest height of 10 feet above the streambed. The diversion is equipped with a 40-foot-wide by 6-foot-deep spillway. The spillway height may be raised or lowered with 4-inch by 6-inch flashboards, each 4-feet in length. The intake chamber is equipped with a weir, including a 48” upper chamber gate and 24-inch pond drain gate connected to 24-inch pipe. A 38-inch-diameter steel pipe with a gate valve and trash rack comprises the outlet. A 12-inch-diameter drainpipe passes through the base of the intake chamber and a 38-inch-diameter drainpipe passes through the diversion. The flowline consists of approximately 4,104-feet of 38-inch-diameter steel pipe connected to 4,059 feet of 34-inch-diameter steel pipe. The flowline extends from the South Fork diversion to Intake No. 2 reservoir. The flowline is protected with air valves, expansion joints, a sand box, and a sand trap. The sand box is concrete

[1] Elevations referenced match those from previous license exhibits. Vertical surveys were performed by SCE in 1980 and utilize the United States Coast and Geodetic Survey Datum (NGVD 29). Refer to the document titled Reservoir Surveys 1980 for description.
[2]SCE is the holder of two water rights for power use for Green Lake Creek in the amount of 1,400 acre-feet per year by storage (2,800 acre-feet total) to be collected from about May 1 to about August 15 each season and stored in South Lake. The minimum rate of diversion to storage in Hillside Reservoir is 15.3 cfs (CDWR 1925; SCE personal communication, Vince White, Hydrographer 2022)

lined, and approximately 17-feet by 24-feet with exit to a 38-inch-diameter steel pipe extending to Intake No. 2. The sand box has two drain gates and a fish release valve.

2.3. HILLSIDE DAM

Hillside dam is located on the South Fork of Bishop Creek, in Inyo County, approximately 16 miles southwest of Bishop, California. The primary purpose of the Hillside dam is to store water and generate hydropower for electricity. Recreation is provided by the reservoir (South Lake). Hillside dam is an 810-foot-high rockfill dam completed in 1910 to enlarge an existing natural lake. The crest of the dam is 645-feet-long and is at elevation 9,757.6 feet above sea level. The downstream face is at a slope of 1 ¼ horizontal (H): 1 vertical (V); the upstream face is at ¾ H:1V slope.

A 1966 safety review notes that the dam contains 86,500 cubic yards of dumped rockfill (Cook. J.B. et.al. 1966). According to Poole (1914), the rockfill is random-size granite, varying in size from “spawls” to boulders 3 cubic yards in size. For the first 10 feet adjacent to the timber plank facing, the rockfill was carefully hand-placed to provide a firm backing. The footing for the timber face of the dam was made by blasting a trench in the solid granite bedrock, approximately 3-feet to 4-feet-deep by 4-feet-wide and embedding the facing timbers and planking in the trench with a strong mixture of concrete (Poole 1914). In 1930 when the timber face was replaced, a new cutoff trench was cut into the rock at the toe of the upstream slope and filled with concrete.

The upstream face of the dam is covered with redwood timber and a polyvinyl chloride (PVC) membrane liner, which serves as the impermeable barrier. The first 1966 Safety Review report notes that in the original 1910 construction, the upstream rock facing was covered with a timber facing composed of 3-inch by 12-inch native, rough-sawed lumber. The original plank facing was completely removed in 1930 and replaced with several layers of 3-inch by 12-inch and 2-inch by 12-inch redwood planking. In 1960 the redwood facing was judged to be in generally sound condition, despite some surface weathering. Leakage had not increased noticeably. To arrest the weathering, a 2-inch-thick coating of redwood lumber was nailed over the 1930 facing. In 2011, a geomembrane liner was installed over the redwood facing to cover and waterproof the entire upstream surface. The installation consisted of:

- A 2,000 gram/square meter (approximately 60 ounce/ square yard) geotextile placed directly on surface to smooth irregularities of the wooden dam face
- Tenax geonet (triplanar) at foundation for drainage collection
- Submersible watertight perimeter (stainless steel) seal along the foundation
- Non-submersible watertight perimeter (stainless steel) seal along the crest
- Submersible watertight perimeter (stainless steel) seal along abutments

- Drainage plates (5) for each arch component, with a drilled hole through the face to allow discharge of water through the dam body

- Tensioning profiles (stainless steel) on 16-foot centers installed into the wood stringers vertically to hold geomembrane to dam

- Geocomposite (PVC geomembrane 3.0 millimeter [mm] with geotextile 500 gram/square meter) in 2.1-meter widths

- Geomembrane (PVC 3.0 mm) welding strips to cover tensioning profiles

2.3.1. SPILLWAYS

The ungated spillway is formed by a 40-foot-long cut through solid rock adjacent to the right abutment of the dam. A concrete lip forms the spillway crest 6.3-feet-below the top of the dam, at elevation 9,751.3 feet. During the 1930s and 1940s, flashboards up to 2-feet in height were used on the spillway at certain times of the year to obtain greater storage. They are no longer used, and the spillway crest is free of obstructions. Spillway overflow discharges laterally from the reservoir into an adjacent ravine which is primarily a hard granite bedrock and boulder-lined channel that directs flow safely away from the dam. The spillway discharge capacity at zero freeboard (elevation 9,757.6 feet) is estimated to be 1,700 cubic feet per second (cfs).

2.3.2. INTAKES

The submerged outlet tunnel intake portal is located approximately 1,200-feet upstream of the dam.

2.3.3. CONVEYANCE SYSTEMS

There are no power conveyances at Hillside dam.

2.3.4. POWERHOUSES

There is no powerhouse directly associated with this reservoir; power generation occurs at Bishop Creek Powerhouse 3, which is located approximately 7 miles downstream from South Lake.

2.3.5. LOW LEVEL OUTLETS

Releases from the reservoir are made through an unlined outlet tunnel in the hard granite bedrock, 1,900-feet-long and 5-foot by 7-foot in cross section, with the invert at elevation 9,621 feet, approximately 80-feet-below the base of the dam. In 2014, the first 100 feet of the intake tunnel (beginning at the intake trash rack) was replaced with a 36-inch-diameter steel pipe. A new trash rack was attached at the entrance of the pipe.

A 3-foot by 5-foot slide gate in the open position is located on the low-level outlet tunnel, approximately 250-feet downstream from the tunnel intake portal and approximately 950-

feet upstream of the dam. The slide gate is located at the bottom of a 100-foot-deep rock shaft, and there is no means of using or checking the gate except when the reservoir is empty. The top of the shaft is at elevation 9,702.7 feet, which is normally inundated by the reservoir. The gate reportedly has not been visually examined since 1952, and therefore is assumed to be inoperable due to lack of servicing or maintenance.

The outlet tunnel is plugged by a concrete bulkhead with a 30-inch-diameter pipe penetration approximately 240-feet downstream from the axis of the dam and 400-feet upstream from its downstream portal.

Downstream from the valve, flow is conveyed by a 24-inch-diameter steel pipe to a small operations chamber (control room) 50-feet upstream from the tunnel portal. In the operations chamber, a 24-inch gate valve (with a rated maximum capacity of 178 cfs) controls and regulates reservoir discharge through the 24-inch-diameter steel outlet pipe. The valve is remotely operated from the Bishop Control Center and is exercised frequently. The hydraulic operator of the valve is powered by a bank of batteries that are charged by a small impulse turbine-generator located in the chamber. Water to the turbine is supplied by a bifurcation from the 24-inch-diameter pipe. The battery/turbine-generator power system provides energy for communications, heat, and light in the chamber. The 24-inch pipe then discharges directly to the natural channel of the South Fork of Bishop Creek.

There were also two 24-inch outlet pipes originally constructed through the base of the dam, but these were plugged in 1954 when the tunnel outlet was modified. A wooden bulkhead was placed 10-feet-downstream of the intake, and the upstream portion was filled with concrete. Contact grouting was performed between the concrete plug and the outlet pipe. The remainder of the pipes were filled with gunite with steel plates installed over the pipe intakes.

2.4. SABRINA DAM

Sabrina dam, located on the Middle Fork of Bishop Creek, a tributary of the Owens River, in Inyo County, is approximately 15 miles southwest of Bishop, California. The dam forms Sabrina Lake which is operated as a regulating reservoir for a series of hydroelectric powerhouses, including Bishop Creek powerhouses 2 through 6. The dam is classified as a “High Hazard Potential” dam under the FERC guidelines due to the potential for loss of life and extensive property damage should dam failure occur. The primary purpose of the Project is downstream hydropower generation. It is operated as a store and release facility and provides water-based recreation on Sabrina Lake.

Sabrina dam is a 70-foot-high, 900-feet-long timber-faced rockfill dam on two tangents and was completed in 1908. The crest of the dam is at elevation 9,137.9 feet and is approximately 10-feet-wide. The downstream face is at a slope of 1 ¼ H: 1 V, while the upstream face is at a ¾ H: 1V slope. The timber face extends down to a concrete block cast on bedrock. In 2006, the timber face was covered by a geomembrane liner. According to Poole (1914), the dam contains approximately 50,000 cubic yards of random sized rock and 400,000 feet (board measure) of timber and lumber.

The upstream face of the dam is covered with redwood timber and a PVC membrane liner, which serves as the impermeable barrier. According to the first 1966 Safety Review, the upstream rock facing was covered with a timber facing which lasted approximately 20 years. In 1929, the timber facing was completely replaced with redwood planking and in 1961, the planking was surfaced with 2-inch-thick redwood shiplap to arrest surface weathering and splitting. In 1916 concrete facing was poured at the toe of the dam at maximum section near the intake structure that extends up to elevation 9,084.4 feet. The drawing indicates that the facing was poured in 1916; details of this modification are not available. In 2006, a geomembrane liner was installed over the redwood facing to cover and waterproof the entire upstream timber surface. The installation consisted of:

- A 2,000 gram/square meter (approximately 60 ounce/square yard) geotextile placed directly on surface to smooth irregularities of the wooden dam face
- Tenax geonet (triplanar) at foundation for drainage collection
- Submersible watertight perimeter (stainless steel) seal along the foundation
- Non-submersible watertight perimeter (stainless steel) along crest
- Submersible watertight perimeter (stainless steel) seal along abutments
- Drainage plates for each arch compartment, with a drilled hole through the face to allow discharge of water through the dam body
- Tensioning profiles (stainless steel) vertically installed into the wood stringers to hold geomembrane to dam
- Geocomposite (PVC geomembrane 2.5mm with geotextile 500 gram/square meter) in 2.1 meter widths
- Geomembrane (PVC 2.5mm) welding strips to cover tensioning profiles

2.4.1. SPILLWAYS

The main spillway, near the right abutment, is an ungated, concrete gravity section with an ogee crest and a flat flip bucket. The spillway is 40-feet-wide with a crest at elevation 9,131.63 feet and discharges to a ravine that converges with the creek channel approximately 200-feet-downstream from the dam.

The auxiliary spillway is located at the right side of the main spillway (looking downstream). It is an ungated 76-feet-long concrete wall with a crest elevation of 9,134.37 feet and a concrete paved spill channel immediately downstream. A vertical gunite-covered masonry wall separates the auxiliary spillway from the main spillway. In 1951, modifications were made to allow for temporary installation of flashboards. The flashboards were removed shortly thereafter and have not been used since. The rated

maximum combined discharge of the two spillways is 3,7000 cfs at zero freeboard at the dam crest.

Sabrina dam has no non-overflow water retaining structures, nor any power conveyances.

2.4.2. INTAKES

Water is released to the downstream channel via the low-level outlets (described below). The intake is a fully submerged concrete box supporting three steel trash racks that is integral with the upstream side of the timber-faced rockfill dam. The invert of the intake is at elevation 9,067.42. In 2004-05, the intake structure was rebuilt, and new trash rack grids were installed. The valves which control the release through the intakes are described with low-level outlets below.

2.4.3. POWERHOUSES

There is no powerhouse directly associated with this reservoir; power generation occurs at Bishop Creek powerhouse 2, which is located below the downstream Bishop Creek Intake No. 2 dam.

2.4.4. LOW LEVEL OUTLETS

The outlet works consist of three 24-inch-diamater concrete-encased steel pipe conduits through the base of the dam. In 2012, SCE Inspection Services conducted an outlet pipe inspection and confirmed that the dam outlet pipes are encased in concrete from the inlet flange to the gate valves. Each outlet is controlled at the downstream end by a 24-inch gate valve. Two of the valves are manually operated, and the third is remotely controlled from the Bishop Control Center near powerhouse No. 5 (SCE 2017) Leakage is monitored through two 12-inch Parshall flumes located at the toe of the dam near the outlet value house. In June 2013, the weirs were reinforced with steel and concrete to improve capture of all leakage (SCE 2018).

2.5. LONGLEY DAM

Longley dam constructed of earth and rockfill is reinforced concrete core wall. The dam has a crest elevation of 10,708.1 feet, crest length of 120 feet, and crest height of 27 feet above the streambed. The upstream face of the dam has a slope of 2 to 1 and a downstream face slope of 1.5 to 1. There are two 8-inch-diameter steel outlet pipes encased in concrete which pass through the base of the dam. Flow is controlled by two 12-inch outlet pipes (low level outlets), which are left open October to June and all flow is passed under the dam. When the snow melts (typically June), the valves are closed to release 1 to 2 cfs into McGee Creek. The reservoir is filled dependent on the water year, and excess spills through the 8-feet-wide by 2-feet deep spillway. The spillway channel is excavated in 8-foot-wide solid rock where water is diverted into McGee Creek. The maximum release capacity of the valves is approximately 20 cfs.

2.6. INTAKE NO. 2 DAM

Bishop Creek Intake No. 2. dam, originally constructed in 1908; however, in 1909, a large portion of the dam near the maximum section washed out. Details of the reconstruction are not publicly available, due to the critical infrastructure information (CEII) classification. The dam is classified as a "High Hazard Potential" dam under FERC guidelines based on the potential loss of life and extensive property damage, should dam failure occur. The dam is located on Middle Fork Bishop Creek, a tributary of the Owens River in Inyo County, approximately 10-miles southwest of Bishop, California. The Bishop Creek Intake No. 2, used primarily for water storage and hydropower generation is operated as a store and release facility for SCE's Bishop Creek System that also provides for recreation on the reservoir.

The current dam is a concrete and earthfill structure with crest elevation at 8,103.50 feet, crest length of 443 feet, and a height 43 feet above streambed. The upstream face is rock rip rap from the crest to approximately 20-feet-below crest and has a slope of 2 to 1. The downstream face slopes are 2 to 1 and 3 to 1.

2.6.1. SPILLWAY

The service spillway, near the maximum section, is an ungated, concrete gravity block with an ogee crest and a flip bucket that flows directly into Bishop Creek below the dam. The spill crest is 40-feet-wide and 6-feet below the dam crest with a sill elevation of 8,098.8 feet. A concrete key extends 4-feet-below the base of the structure at the upstream face. Reinforced concrete walls contain the flow downstream of the crest. There is a single 14-inch by 16-inch reinforced concrete strut between the walls that was knee-braced in horizontal and vertical directions with the embankment placed directly against these walls. In 1996 the spillway was repaired, and a new shotcrete overlay was applied to the downstream spillway face. The spillway is spanned by a walkway structure. Discharge from the service spillway flows directly into Bishop Creek below the dam.

The auxiliary spillway, constructed in 1989 and located over the right half of the dam, is an ungated, concrete ogee crest, 200-feet-long, at elevation 8,100.8 feet, with a roller compacted concrete-buttressed downstream slope, and a concrete-stabilized pilot discharge channel within a full width unlined excavated channel. Discharge from the auxiliary spillway channel flows into Bishop Creek below the dam.

2.6.2. OUTLETS

There are two, 3-foot-wide by 3-foot-high low-level outlet conduits through the service spillway block, controlled by hydraulic actuators which operate the 36-inch-wide slide gates that discharge directly into Bishop Creek.

2.6.3. INTAKE

In 2005, a new intake structure was constructed to replace the original intake structure. The intake is a reinforced concrete structure in the reservoir with two 4-foot-wide by 6-foot-high inlet slide gates. The intake chamber is equipped with an automatic trash rake.

A hydraulically operated, 48-inch-diameter butterfly valve is located at the entrance to the flowline/penstock.

2.6.4. FLOWLINE/PENSTOCK NO. 2

Water is conveyed to flowline/penstock No. 2 through a 48-inch-diameter steel pipe that passes under the dam near the left abutment. The steel pipe connects to a second hydraulically operated, 48-inch-diameter butterfly valve located in a small building at the downstream toe of the dam. The butterfly valve controls flow through a 48-inch to 60-inch-diameter expansion into the 60-inch-diameter flowline to Bishop Creek powerhouse No. 2. The valves are normally open but are operable remotely from the SCE's Bishop Control Center located next to powerhouse No. 5.

A 24-inch-diameter sand sluice pipe runs parallel to the 48-inch-diameter pipe and passes under the dam. A 20-inch fish-water release pipe branches off the 24-inch sluice line directly above the valve house. The fish-water release piping was reconfigured, and a new acoustic velocity meter (AVM) was installed in 2008 to monitor and record minimum flow releases.

Downstream of the reservoir, the 60-inch-diameter steel flowline No. 2 extends 9,765 feet and is supported above the ground on concrete saddles. There is a 180-inch air vent stack at the upstream end of the flowline that is located next to the valve house. The flowline has vacuum activated air valves at 1,000-foot intervals.

2.6.5. PENSTOCK

The steel penstock is 54-inch-diameter and buried for the final 2,628-foot-long decent to powerhouse No. 2 with a rated capacity of the penstock is 140 cfs. There is a steel air vent stack and a manually operated valve located at the downstream end of the flowline. The penstock has vacuum activated air valves at 1,000-foot intervals. The penstock bifurcates three times at the powerhouse to supply three impulse turbines.

2.7. INTAKE NO. 3 DAM

Intake No. 3 dam impounds the tail water from Plant No. 2 to form a small intake reservoir prior to the No. 3 flowline. The dam is a concrete, constant radius arch structure with the crest elevation at 7,139.0 feet, and length along the crest of approximately 225 feet reinforced with concrete buttresses. The dam crest is 5-feet-wide at a height of 20-feet above the streambed.

The spillway is at 7,139.0 feet and is a 40-foot-long by 3.5-foot-deep concrete ogee section. The intake consists of a 60-inch-diameter steel pipe with a steel trash rack and grid rake. Flow control for the intake is provided by two hydraulic lift gates measuring 4-feet by 8-feet and three 24-inch-diameter pipes passing through the base of the intake chamber provide drainage. Two 36-inch drainpipes controlled by 36-inch slide gates pass through the spillway. The flowline consists of 6,421 feet of 60-inch-diameter riveted steel pipe and 6,209 feet of 60-inch-diameter welded steel pipe.

The penstock consists of approximately 3,335 feet of 54-inch double riveted lap joint steel pipe connected to 383 feet of 50-inch-diameter double riveted lap joint steel pipe. The final 955 feet consist of 48-inch triple riveted butt joint steel pipe. The flowline and penstock are protected by air valves, standpipes, and expansion joints with a 180 cfs maximum capacity rated flowline.

2.8. INTAKE NO. 4 DAM

The Intake No. 4 dam is a concrete, constant radius, thin arch dam with crest elevation at 6,320 feet, crest length of approximately 323 feet, and crest height 28 feet. The spillway is a 50-foot-wide by 5-foot-deep concrete ogee section, with two slide gates and two 36" drainpipes associated with the two stoplog sections. The dam is equipped with a 60-inch-diameter steel pipe connected to two 30-inch-diameter steel penstocks by a steel wye section. Two 30-inch valves are provided at the wye section to control flow through the respective penstocks. The flowline is equipped with standpipes and air valves and a shut off valve. Two steel penstocks convey flow to the powerhouse main turbines. Penstock No. 1 is approximately 5,314-feet-long and varies from 30 inches in diameter at the wye section to 24 inches at the entrance to the powerhouse and is equipped with a bypass sandtrap. Penstock No. 2 is 30 inches in diameter and approximately 5,665 feet in length. Each penstock is equipped with air valves and expansion joints with flowline capacity of 133 cfs under optimum conditions.

2.9. INTAKE NO. 5 DAM

Intake No. 5 dam is a concrete structure with crest elevation of 5,193 feet, crest length of 220 feet, and crest height of 20 feet above the streambed. Concrete buttresses are incorporated along the downstream face of the dam. The spillway is a 60-foot-wide concrete channel with the sill 3-feet below the crest of the dam. The intake consists of a concrete intake chamber connected to a 60-inch steel pipe and 540-feet of 60-inch reinforced concrete pipe. The flowline is connected to a steel wye section which diverts the water into two 42-inch-diameter steel penstocks. Two 42-inch gate valves are provided at the wye section to control the flow through penstocks. Both penstocks are 42-inch-diameter steel pipe approximately 4,800-feet-long. The penstocks are equipped with air valves and expansion joints with flowline capacity of 158 cfs under optimum conditions.

2.10. INTAKE NO. 6 DAM

Intake No. 6 dam is a concrete structure approximately 320-feet along the crest and 26-feet above the streambed with a dam crest elevation of 4,775 feet supported with concrete buttresses. The 60-foot-wide spillway channel has a crest elevation of 4,772.48 feet. The intake is a 19-foot by 21-foot concrete intake chamber with a 60-inch-diameter steel outlet pipe and steel trash grid. Two 24-inch-diameter pipes with gate valves are located at the bottom of the intake chamber for drainage. A 46-inch-diameter drainpipe and a 36-inch-diameter drainpipe pass through the spillway, each controlled by a slide gate measuring 46-inches and 36-inches, respectively. The drainpipes are located 14-feet-below the crest of the dam. The penstock consists of approximately 4,360 feet of 54-inch-diameter steel

pipe equipped with air valves and expansion joints. The flowline consists of approximately 3,000 feet of 60-inch-diameter steel pipe with a 133 cfs capacity.

2.11. DIVERSION PIPE

The Birch-McGee diversion pipe connects to the lower end of flowline No. 2. This 24-inch-diameter steel pipe conveys water from Birch and McGee creeks to flowline No. 2. The flowline collects water from the Birch-McGee diversion with a flowline rated capacity of approximately 40 cfs.

Another flowline which diverts water from McGee Creek, extending from the McGee Creek diversion (located on McGee Creek) to Birch Creek, just upstream of the Birch-McGee diversion. This flowline is mentioned here to clarify any confusion between the Birch-McGee diversion and the McGee Creek diversion.

2.11.1. BIRCH CREEK DIVERSION

The Birch Creek diversion is a stone and concrete structure approximately 22-feet-long approximately 6-feet-above the streambed. The spillway is a 3-foot-wide headgate with control provided by 2-inch by 12-inch flash boards 3-feet-long. The crest elevation of the diversion is 8,303.61. The outlet of the diversion consists of a concrete intake structure equipped with a weir box, 24-inch-diameter steel outlet pipe, and 12-inch drainpipe. A 6-inch sluice gate and 6-inch sluice pipe extend from the weir box. The flowline consists of approximately 9,513 feet of 24-inch-diameter slip joint, welded steel pipe, equipped with four sandtraps, three syphons, three drain valves, and is connected to the Intake No. 2 flowline.

2.11.2. MCGEE CREEK DIVERSION

McGee Creek diversion is a stone and concrete structure with a crest elevation at 9,192.0 feet, crest length of 22-feet, and 6-feet above streambed, as measured from a point located approximately halfway across the crest of the dam and vertically down the face of the downstream side. The diversion has a 12-foot-wide by 1-foot-deep spillway channel. The outlet of the diversion consists of an 18-inch-diameter slide gate with a 12-inch-diamater drainpipe that passes through the base of the diversion. The diversion is also equipped with a 20-inch slide gate and 4-inch fish release pipe with 6-inch diameter standpipe. The flowline consists of an approximate 225 feet of open ditch, 225 feet of welded steel pipe, and 2,774 feet of slip joint, welded steel pipe varying in diameter from 18 to 12 inches that extends from the McGee Creek diversion to the Birch Creek watershed. Flows diverted by McGee Creek diversion continue to Birch Creek diversion.

3.0 RESERVOIRS

As required by Federal Power Act regulations 18 CFR §4.51(b)(2), the following section provides the normal maximum surface area and normal maximum surface elevation (mean sea level [msl]), gross storage capacity, and useable storage capacity of any impoundments to be included as part of the project.

The Bishop Project includes four reservoirs: South Lake, Lake Sabrina, Longley Lake, and Intake No. 2. South Lake and Lake Sabrina are the primary storage reservoirs for the Project, while Longley Lake is a secondary storage reservoir. Intake No. 2 provides negligible active storage. Table 3.4-1 provides reservoir elevations and capacities for the primary reservoirs.

3.1. SOUTH LAKE

South Lake is operated as a store and release facility for water storage and downstream hydropower generation of electricity. South Lake holds and releases spring runoffs to allow for regulated flows during the summer months to the powerhouses and provide for water recreation. Flow is regulated with an unlined tunnel with a capacity of 178 cfs.

3.2. LAKE SABRINA

Lake Sabrina is operated as a store and release facility. Water is released to the downstream channel via low-level outlets; the intake is a fully submerged concrete box supporting three steel trash racks which are integral with the upstream side of the dam. Lake Sabrina is also utilized for water recreation.

3.3. LONGLEY LAKE

Longley Lake is operated as secondary store and release facility for water storage and downstream hydropower generation of electricity. Longley Lake dam discharges water to McGee Creek, where it flows over 1 mile before being intercepted by the McGee Creek diversion. Water from Longley Lake, and the upper portions of the Birch Creek watershed, is received at powerhouse No. 2, before being conveyed through a series of pipes and penstocks connecting powerhouses No. 2, 3, 4, 5, and 6.

3.4. INTAKE NO. 2

Intake No. 2 provides negligible active storage.

Table 3.4-1. Reservoir Characteristics at Storage Reservoirs

	South Lake	Lake Sabrina	Longley Lake
Normal maximum surface area	173 acres	184 acres	11-acres
Normal maximum surface elevation	9,751.3 feet above sea level	9,131.62 feet above sea level	10,708 feet above sea level
Gross storage capacity	12,883 acre-feet	8,376 acre-feet	178 acre-feet
Usable storage capacity*	12,883 acre-feet	8,376 acre-feet	178 acre-feet

*Above sea level
**The gross and usable storage capacity at South Lake is equal, due to the ability to completely empty the reservoir if needed.

4.0 POWERHOUSES, TURBINES, AND GENERATORS

As required by Federal Power Act regulations 18 CFR §4.51(b)(3), the following section contains the number, type, and rated capacity of any turbines or generators, whether existing or proposed, to be included as part of the project.

4.1. POWERHOUSES

The Bishop Project has a total of 5 powerhouses, numbered 2 – 6. There is no powerhouse No. 1. All of the turbines and generators associated with these powerhouses are existing. Unit capacities for each powerhouse, turbine, and generators, are described in Table 4.4-1. SCE is not proposing to add any new turbines or generators.

4.1.1. POWERHOUSE NO. 2

The normally unattended powerhouse is a single-story, reinforced concrete structure with outside dimensions of approximately 57-feet-wide by 80-feet-long. The powerhouse's main control panel is located on the ground floor, inside the operator's room. The powerhouse contains a restroom, enclosed office, and battery room.

A four-stall, wood-stud garage is located approximately 250 feet from the entrance to the powerhouse. A smaller single-stall, wood-stud garage is located approximately 200 feet from the entrance to the powerhouse.

The non-project switchyard and Project transformer house are located adjacent to the powerhouse. Galvanized steel racks support the switchgear located inside the transformer house. The main generators are connected from the station bus to the transformer bank through the Total 2.4 kilovolt (kV) circuit breaker.

There are no Project transmission lines associated with powerhouse 2.

The powerhouse is remotely controlled by an automated system from the Eastern Hydro Operations Center. The system allows remote unit load control and shutdown. Unit return to service requires operator intervention. The maximum dependable operating capacity of powerhouse 2 is 7.32 megawatts (MW) with a minimum hydraulic capacity of 5 cfs, while the maximum hydraulic capacity is 135 cfs.

Service to the station includes power distribution equipment heating, ventilating and air conditioning systems, a compressed air system, a fire protection system, sanitary disposal system, lighting, and a station crane for lifting major equipment.

4.1.2. POWERHOUSE NO. 3

The normally unattended powerhouse is a single story reinforced concrete structure with outside dimensions of 40-feet-wide by 85-feet- long. The powerhouse's main control panel is located on the ground floor inside the operator's room. The powerhouse contains

a restroom and enclosed office. A battery room is located in a separate concrete building adjacent to the powerhouse.

The switchyard is located adjacent to the powerhouse. Galvanized structural steel switchbacks support the 115kV bus, disconnects, and related equipment. The main generating units are connected from the station bus to the transformer bank through the Total 2.4 kV circuit breaker.

The Project transmission line extends approximately 3.1 miles from the switchyard to control substation (non-project). A 0.7-mile-long tap line extends to the switchrack at powerhouse No. 4. The transmission line is a 115 kV, three-phase, single circuit line constructed on steel towers and wooden poles with suspension type insulators.

The powerhouse is remotely controlled by an automated system from the Eastern Hydro Operations Center. The system allows remote unit load control and shutdown. Unit return to service requires operator intervention. The maximum dependable operating capacity of Powerhouse 3 is 8.25 MW with a minimum hydraulic capacity of 6 cfs, while the maximum hydraulic capacity is 165 cfs.

Service to the station includes power distribution equipment, heating, ventilating and air conditioning systems, a compressed air system, fire protection system, sanitary disposal system, lighting, and a station crane for lifting all major equipment.

4.1.3. POWERHOUSE NO. 4

The normally unattended powerhouse is a single story reinforced concrete structure with outside dimensions of 55-feet-wide by 101-feet-long. The powerhouse's main control panel located on the ground floor inside the control room. The powerhouse contains a control room, battery room, communications room, and restroom.

The switchyard is located adjacent to the powerhouse. Galvanized steel racks support the 115 kV bus, switchgear, disconnects, and related equipment. The main generators are connected to the transformer bank through the total 2.4 kV circuit breaker.

The Project transmission line is a 0.7-mile tap extending from the switchyard to the transmission line connecting plant No. 3 to control substation (non-project). The line is a 115 kV, three-phase, single circuit transmission line constructed on wooden pole structures with suspension-type insulators.

The powerhouse is remotely controlled by automated system from the Eastern Hydro Operations Center. The system allows remote unit load control and shutdown. Unit return to service requires operator intervention. The maximum dependable operating capacity of powerhouse No. 4 is 7.95 MW with a minimum hydraulic capacity of 2 cfs, while the maximum hydraulic capacity is 125 cfs.

Service to the station includes power distribution equipment, heating, ventilation and air conditioning systems, a compressed air system, fire protection system, sanitary disposal system, lighting, and a station crane for lifting major equipment.

4.1.4. POWERHOUSE NO. 5

The normally unattended powerhouse is a single-story wood and corrugated sheet metal building with outside dimensions of approximately 55-feet-wide by 59-feet-long. The powerhouse's main control panel and auxiliary control panel located on the ground floor. The powerhouse contains an enclosed office, restroom, storage room, and workbench.

The switchyard is located adjacent to the powerhouse. Galvanized structural steel switchbacks support the 55 kV bus, switchgear, and related equipment. The main generators are connected to the transformer bank through the total 2.4 kV circuit breaker.

There are no transmission facilities associated with powerhouse No. 5.

The powerhouse is remotely controlled by an automated system from the Eastern Hydro Operations Center. The system allows remote unit load control and shutdown. Unit return to service requires operator intervention. The maximum dependable operating capacity of Powerhouse 5 is 3.8 MW with a minimum hydraulic capacity of 41 cfs, while the maximum hydraulic capacity is 130 cfs.

Service to the station includes power distribution equipment, heating, ventilation, and air conditioning systems, a compressed air system, fire protection system, sanitary disposal system, lighting, and a station crane for lifting major equipment.

4.1.5. POWERHOUSE NO. 6

The normally unattended powerhouse is single-story reinforced concrete structure with outside dimensions approximately 35.5-feet-wide by 48-feet-long. The powerhouse's control panel is located on the ground floor. The powerhouse contains a restroom, battery room, and operator desk.

The switchyard is located across from the powerhouse and contains the three main power transformers. Galvanized structural steel switchracks support the switchgear, busses, and related equipment. The main generator is connected to the transformer bank through a 7.5kV, 800-amp main oil circuit breaker.

The Project transmission line extends 630 feet from powerhouse No. 6 switchyard to a 55 kV pole switch 530 (non-project). The transmission line is a 55 kV, three phase, single circuit transmission line constructed on lattice steel and wooden poles with suspension-type insulators.

The powerhouse is remotely controlled by an automated system from the Eastern Hydro Operations Center. The system allows remote unit load control and shutdown. Unit return to service requires operator intervention. The maximum dependable operating capacity of powerhouse No. 6 is 1.6 MW with a minimum hydraulic capacity of 9 cfs, while the maximum hydraulic capacity is 150 cfs.

Service to the station includes power distribution equipment, heating, ventilation, and air conditioning systems, a compressed air system, fire protection system, sanitary disposal system, lighting, and a station crane for lifting major equipment.

4.2. TURBINES

4.2.1. POWERHOUSE 2 TURBINES

Each main turbine is equipped with a 22-inch, manually operated, slide gate turbine shut-off valve. A 54-inch motor operated gate valve is located at the upper end of the penstock.

Bearing lubrication oil is completely self-contained in the journal bearing reservoirs for each turbine shaft bearing. Cooling for the bearings is supplied from the powerhouse domestic water system and returned to the tailrace after once-through use as a coolant. The Unit No.3 outboard journal bearing does not utilize cooling water.

A common governor oil system serving each unit governor set is used with the main oil supply located in the powerhouse. The system consists of a motor-driven pump, oil pressure tank, sump tank, and interconnecting piping and valves to and from the governors. An auxiliary motor driven air compressor is provided to supply compressed air to the pressure tank. Normal turbine operating speed is maintained by a common governor system. The main generating units are normally block loaded to the power grid with the governors serving as trip devices. However, the governors can function to carry an isolated load.

4.2.2. POWERHOUSE 6 TURBINES

Each turbine runner is equipped with a 36-inch, manually operated, slide gate turbine shut-off valve. The single penstock bifurcates upon entering the powerhouse to each turbine runner. Each turbine runner is equipped with two needle valves, one is manually operated, and the other is electrically operated.

Bearing lubrication oil is completely self-contained in the journal bearing reservoirs for each turbine shaft bearing.

The governor oil system consists of a positive displacement pump, motor, pressure tank, sump tank, and interconnecting piping and valves to and from the governor. The governor functions as a trip device. Oil pressure for the main unit governor is obtained from a motor-driven gear pump, pressure tank, and sump tank. The governor does not control turbine speed or load.

4.2.3. POWERHOUSE 3 TURBINES

Each main turbine is equipped with a 24-inch, water driven, slide gate turbine shut-off valve. The valves may be operated manually. A 54-inch manually operated gate valve is located at the upper end of the penstock.

Bearing lubrication oil is completely self-contained in the journal bearing reservoirs for each turbine shaft bearing. Cooling is provided by water taken from the penstock and returned to the tailrace after once-through use as a coolant.

Unit Nos. 1 and 2 use a common governor oil system consisting of a dual set of gear pumps, pressure tank, sump tank, and interconnecting pipes and valves to the governors. Unit No. 3 uses a separate governor set with a dedicated pressure tank and sump tank. A 3,500-gallon storage tank for transformer oil is located in the rear of the powerhouse.

4.2.4. POWERHOUSE 4 TURBINES

Unit Nos. 1 and 2 turbine shut-off valves are 14-inch manually operated gate valves. Unit No. 3 turbine shut-off valve is an 18-inch water-driven gate valve. Unit No. 4 turbine shut-off valve is an 18-inch manually operated gate valve. Unit No. 5 turbine shut-off valve is an 18-inch manually operated gate valve located in wye valve house adjacent to the powerhouse. A 30-inch manually operated lower penstock valve is located inside the powerhouse. A 14-inch manually operated valve controls flow through the tie line connecting the two penstocks.

Bearing lubrication oil is completely self-contained in the journal bearing reservoirs for each turbine shaft bearing. Bearing cooling water is taken from the penstock and returned to the tailrace after once-through use as a coolant.

Unit Nos. 1, 2, 3, and 4 turbines are controlled by a common governor oil system consisting of a main and auxiliary motor driven gear pump, oil pressure tank, sump tank, and interconnecting piping and valves to and from the governors. Unit Nos. 1 and 2 governors are trip devices. Unit No. 5 governor is a separate self-contained governor with its own pump, sump tank, pressure tank, and interconnecting piping.

4.2.5. POWERHOUSE 5 TURBINES

Unit No. 1 main turbine is equipped with a 34-inch, water-actuated slide gate turbine shut-off valve. Unit No. 2 is equipped with a 24-inch, water-driven slide gate turbine shut-off valve. The plant bypass valve is an 18-inch Howell-Bunger valve located in a metal sided shed approximately 30 feet from the southwest corner of the powerhouse. The valve is electrically operated from powerhouse No. 5 or from control substation (non-project).

Bearing lubrication oil is completely self-contained in the journal bearing reservoirs for each turbine shaft bearing, with one exception: the Unit No. 1 outboard bearing has an external head tank and heat exchanger. Bearing cooling water is taken from the penstock and returned to the tailrace after once-through use as a coolant.

Each turbine unit is equipped with its own self-contained governor with a motor, gear pump, pressure tank, sump tank, and interconnecting piping and valves. Governor oil is contained in the sump of each unit governor.

4.3. GENERATORS

4.3.1. POWERHOUSE 2 GENERATORS

The three main generators are horizontal shaft, partially enclosed, air cooled Westinghouse units. Cooling is provided by air drawn from within the powerhouse with the aid of fans on the rotors. Excitation is provided by a static excitation system for each main generator. Each main generator is protected by a 1,200-amp, 14.4 kV oil circuit breaker.

4.3.2. POWERHOUSE 3 GENERATORS

The three main generators are horizontal shaft, partially enclosed, air cooled Crocker Wheeler units. Cooling is provided by air drawn from within the powerhouse with the aid of fans on the rotors. Excitation is provided by a static excitation system for each main generator.

4.3.3. POWERHOUSE 4 GENERATORS

The five main generators are horizontal shaft, partially enclosed, air cooled units. Cooling is provided by air drawn from within the powerhouse with the aid of fans on the rotors. Excitation is provided by a static excitation system for each main generator. Each generator is protected by a 1,200-amp, 4.7 kV air circuit breaker.

4.3.4. POWERHOUSE 5 GENERATORS

The two main generators are horizontal shaft, partially enclosed, air cooled Westinghouse units. Cooling is provided by air drawn from within the powerhouse with the aid of fans on the rotors. The exciters are shaft driven off the generator shaft of each unit. Each main generator is protected by a 600-amp, 15 kV oil circuit breaker.

4.3.5. POWERHOUSE 6 GENERATORS

The powerhouse main generator is a horizontal shaft, partially enclosed, air cooled Allis Chalmers unit. Cooling is provided by air drawn from within the powerhouse with the aid of fans on the rotors. Excitation is provided by a motor driven exciter. The main generator is protected by an 800-amp, 7.5 kV oil circuit breaker.

4.4. POWERHOUSE, TURBINE, AND GENERATOR CAPACITIES

The rated capacity of each powerhouse unit is limited by either the rated capacity of the turbine, or the rated capacity of the generator, whichever is lower is provided in Table 4.4-1. The final two columns identify which aspect is the limiting factor, and the final rated capacity of each unit.

Table 4.4-1. Turbine and Generator Capacities

Location	Unit	Turbine Type	Turbine HP	Rated ft	Static ft	RPM	Turbine KW	Generator KVA	P.F.	Generator KW	Limit	Rated KW
PH2	1	Pelton Single-jet	3,670	875	951	300	2,947	2,500	1	2,500	Generator	2,500
	2	Pelton Single-jet	3,670	875	951	300	2,738	2,500	1	2,500	Generator	2,500
	3	Pelton Single-jet	3,530	875	951	300	2,633	2,900	0.8	2,320	Generator	2,320
Total												7,320
PH3	1	Pelton Single-jet	4,000	730	809	300	2,984	2,750	1	2,750	Generator	2,750
	2	Pelton Single-jet	4,000	730	809	300	2,984	2,750	1	2,750	Generator	2,750
	3	Pelton Single-jet	4,000	730	809	300	2,984	2,750	1	2,750	Generator	2,750
Total												8,250
PH4	1	Pelton Single-jet	3,000	1,053	1,112	450	2,238	1,000	1	1,000	Generator	1,000
	2	Pelton Single-jet	3,000	1,053	1,112	450	2,238	1,000	1	1,000	Generator	1,000
	3	Pelton Single-jet	3,000	1,053	1,112	400	2,238	2,180	0.91	1,985	Generator	1,985
	4	Pelton Single-jet	2,850	1,053	1,112	400	2,126	2,180	0.91	1,985	Generator	1,985
	5	Pelton Single-jet	2,850	1,053	1,112	400	2,126	2,180	0.91	1,985	Generator	1,985
Total												7,955
PH5	1	Francis	2,900	382	418	600	2,163	2,500	0.8	2,000	Generator	2,000
	2	Francis	2,800	350	418	720	2,089	2,813	0.9	2,532	Turbine	2,089
Total												4,089[1]

Location	Unit	Turbine Type	Turbine HP	Rated ft	Static ft	RPM	Turbine KW	Generator KVA	P.F.	Generator KW	Limit	Rated KW
PH6	1	Pelton Single-jet	2,850	220	263	164	2,126	2,000	0.8	1,600	Generator	1,600
Total												1,600
Total Project	**14**											**29,214**

[1] Hydraulic limitations currently exist at Plant 5 that prevent simultaneously operating both turbines at rated capacity, thus reducing the total plant effective capacity to 3,800, and total project dependable capacity to 28.9 MW.

5.0 TRANSMISSION LINES

As required by Federal Power Act regulations 18 CFR §4.51(b)(4), the following section describes the number, length, voltage, and interconnections of any primary transmission lines, whether existing or proposed, to be included as part of the project.

Existing Transmission Lines

The Project includes the following primary transmission lines:

- A 3.7-mile-long, 115-kV transmission line from powerhouse No. 3 to the control substation; (Control-Plant 3-Plant 4)
- A 0.7-mile-long, 115-kV transmission line which runs from the powerhouse No. 4 switchyard to the transmission line connecting powerhouse 3 to the control substation; (Control-Plant 3-Plant 4)
- A 150-foot-long, 55-kV transmission line which runs from the powerhouse No. 5 to tap the transmission line between powerhouse No. 6 switchyard and the control substation (Control-Mt. Tom).

6.0 APPURTENANT FACILITIES

As required by Federal Power Act regulations 18 CFR §4.51(b)(5), the following section specifies any additional mechanical, electrical, and transmission equipment appurtenant to the Project. Table 6.1-1 below provides a general summary; stream gages are described in Table 6.1-2. Stream Gages Appurtenant to the Facilities.

Table 6.1-1. Mechanical, Transmission, and Electrical equipment Appurtenant to the Project

Appurtenant Facilities	Location(s)
Cell Phone Repeater	Approximately 900 feet north and uphill of Plant 4.
Deer Guzzlers and Animal Crossings	Along Flowline 2, there are two deer guzzlers and two animal crossings in place.
Air Valves	Air valves are found periodically along the following flowlines or penstocks: South Fork Diversion Flowline Flowline 2 Powerhouse 2 Penstock Flowline 3 Powerhouse 3 Penstock Flowline 4 Powerhouse 4 Penstocks Flowline 5 Powerhouse 5 Penstocks Powerhouse 6 Penstock
Standpipes	Standpipes are found periodically along the following flowlines or penstocks: Flowline 2 Powerhouse 2 Penstock Flowline 3 Powerhouse 3 Penstock Flowline 4 Flowline 6
Gate Valve By-passes	Flowline 3 Powerhouse 4 Penstock 1 Powerhouse 4 Penstock 2
Weather Station	Approximately 400 feet downstream of the Low-Level Outlet for Sabrina Dam.

Table 6.1-1. Stream Gages Appurtenant to the Facilities

SCE #	USGS #	Type	Name	Latitude	Longitude	Note
301	10-2709.85	Stream	Abelour Ditch	37°20'28.07"N	118°28'45.99"W	
302	10-2712.00	Stream	Bishop Creek Channel above Plant No. 6 Tailrace	37°21'00.19"N	118°27'44.99"W	
303	10-2708.75	Reservoir	Intake Two Reservoir	37°14'52.45"N	118°34'57.41"W	
305	10-2706.80	Stream	Green Creek Conduit at Outlet	37°10'13.64"N	118°33'54.27"W	
306	10-2682.25	Stream	McGee Creek Diversion	37°16'31.86"N	118°37'10.91"W	
307	10-2708.72	Stream	Middle Fork Bishop Creek below Lake Sabrina	37°12'49.65"N	118°36'37.74"W	
308A	10-2708.77	Stream	Middle Fork Bishop Creek below Intake No. 2	37°14'52.49"N	118°34'55.41"W	AVM
308B			Middle Fork Bishop Creek below Intake No. 2	37°15'15.03"N	118°34'42.14"W	FLUME
309	10-2708.70	Reservoir	Lake Sabrina Reservoir	37°12'43.67"N	118°36'43.02"W	
310	10-2708.00	Stream	South Fork Bishop Creek below South Lake	37°10'37.08"N	118°33'47.35"W	
311	Non-USGS	Stream	South Fork Bishop Creek Diversion	37°14'26.07"N	118°33'55.89"W	
312	10-2707.00	Reservoir	South Lake (Hillside Reservoir)	37°10'21.24"N	118°33'55.63"W	
313	10-2710.60	Stream	Bishop Creek Plant No. 6	37°20'30.17"N	118°28'25.90"W	
314	10-2709.00	Stream	Birch-McGee Creeks Diversion	37°16'25.75"N	118°34'48.48"W	
320	10-2682.82	Stream	Birch Creek below Birch-McGee Diversion	37°16'41.80"N	118°36'42.45"W	
321	10-2682.27	Stream	McGee Creek below McGee Creek Diversion	37°16'39.13"N	118°37'51.85"W	
322	10-2708.30	Stream	Bishop Creek below South Fork Diversion	37°14'27.35"N	118°33'55.71"W	
323A			Bishop Creek below Intake No. 3 (Plant 2)	37°16'26.59"N	118°34'23.52"W	AVM

SCE #	USGS #	Type	Name	Latitude	Longitude	Note
323B	10-2708.85	Stream	Bishop Creek below Intake No. 3 (Plant 2)	37°16'26.58"N	118°34'22.01"W	FLUME
324A	10-2709.40	Stream	Bishop Creek below Intake No. 4 (Plant 3)	37°18'07.37"N	118°31'50.75"W	AVM
324B			Bishop Creek below Intake No. 4 (Plant 3)	37°18'08.04"N	118°31'46.55"W	FLUME
325A	10-2709.70	Stream	Bishop Creek below Intake No. 5 (Plant 4)	37°19'25.36"N	118°30'03.43"W	AVM
325B			Bishop Creek below Intake No. 5 (Plant 4)	37°19'27.34"N	118°30'00.86"W	FLUME

7.0 PROJECT BOUNDARY

As required by Federal Power Act regulations 18 CFR §4.51(b)(6), the following section identifies all lands of the United States that are enclosed within the Project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreages of the lands of the United States within the project boundary.

Table 7.1-1 summarizes acreages by land-ownership, while Table 7.1-2 provides this data tabulated by legal subdivisions of a public lands survey of the affected areas.

Table 7.1-1. Land Ownership within Project Boundary

Ownership	Acreage	Percentage of Total
U.S. Forest Service	757.6	71.1
Bureau of Land Management	50.7	4.8
Non-federal	257.1	24.1
Total Project Acreage	***1065.4***	

Table 7.1-2. Land Ownership Tabulated by Legal Subdivision of a Public Land Survey.

Owner	Acreage	Transmission	MTRS	Township	Range	Meridian	Section
Private	1.38	N	MDM-T07S-R32E-30	T07S	R32E	MDM	30
Private	4.18	N	MDM-T08S-R31E-20	T08S	R31E	MDM	20
Private	5.50	N	MDM-T08S-R31E-22	T08S	R31E	MDM	22
Private	1.63	N	MDM-T08S-R31E-27	T08S	R31E	MDM	27
Private	0.38	N	MDM-T08S-R31E-29	T08S	R31E	MDM	29
Private	2.28	N	MDM-T08S-R31E-3	T08S	R31E	MDM	3
Private	3.01	N	MDM-T08S-R31E-5	T08S	R31E	MDM	5
Private	6.23	N	MDM-T08S-R31E-6	T08S	R31E	MDM	6
SCE	0.35	N	MDM-T07S-R31E-35	T07S	R31E	MDM	35
SCE	14.92	N	MDM-T07S-R31E-36	T07S	R31E	MDM	36
SCE	25.32	N	MDM-T07S-R32E-16	T07S	R32E	MDM	16
SCE	11.40	N	MDM-T07S-R32E-17	T07S	R32E	MDM	17
SCE	57.48	N	MDM-T07S-R32E-19	T07S	R32E	MDM	19
SCE	4.67	N	MDM-T07S-R32E-20	T07S	R32E	MDM	20
SCE	9.83	N	MDM-T07S-R32E-9	T07S	R32E	MDM	9
SCE	0.15	N	MDM-T08S-R31E-21	T08S	R31E	MDM	21
SCE	5.71	N	MDM-T08S-R31E-22	T08S	R31E	MDM	22
USFS	4.57	N	MDM-T09S-R31E-11	T09S	R31E	MDM	11
USFS	91.34	N	MDM-T09S-R31E-14	T09S	R31E	MDM	14

Owner	Acreage	Transmission	MTRS	Township	Range	Meridian	Section
SCE	70.98	N	MDM-T09S-R31E-15	T09S	R31E	MDM	15
USFS	7.12	N	MDM-T09S-R31E-22	T09S	R31E	MDM	22
USFS	1.25	N	MDM-T09S-R31E-23	T09S	R31E	MDM	23
BLM	0.17	Y	MDM-T07S-R32E-17	T07S	R32E	MDM	17
BLM	14.73	Y	MDM-T07S-R32E-20	T07S	R32E	MDM	20
BLM	18.20	N	MDM-T07S-R32E-17	T07S	R32E	MDM	17
BLM	0.25	N	MDM-T07S-R32E-19	T07S	R32E	MDM	19
BLM	17.39	N	MDM-T07S-R32E-20	T07S	R32E	MDM	20
USFS	0.89	N	MDM-T07S-R31E-24	T07S	R31E	MDM	24
USFS	35.81	N	MDM-T07S-R31E-25	T07S	R31E	MDM	25
USFS	20.34	N	MDM-T07S-R31E-34	T07S	R31E	MDM	34
USFS	28.24	N	MDM-T07S-R31E-35	T07S	R31E	MDM	35
USFS	36.25	N	MDM-T07S-R32E-19	T07S	R32E	MDM	19
USFS	2.06	N	MDM-T07S-R32E-30	T07S	R32E	MDM	30
USFS	15.33	N	MDM-T08S-R30E-1	T08S	R30E	MDM	1
USFS	16.52	N	MDM-T08S-R30E-2	T08S	R30E	MDM	2
USFS	12.03	N	MDM-T08S-R30E-3	T08S	R30E	MDM	3
USFS	21.17	N	MDM-T08S-R30E-36	T08S	R30E	MDM	36
USFS	40.67	N	MDM-T08S-R31E-16	T08S	R31E	MDM	16
USFS	0.00	N	MDM-T08S-R31E-17	T08S	R31E	MDM	17
USFS	14.86	N	MDM-T08S-R31E-20	T08S	R31E	MDM	20
USFS	4.03	N	MDM-T08S-R31E-21	T08S	R31E	MDM	21
USFS	2.68	N	MDM-T08S-R31E-22	T08S	R31E	MDM	22
USFS	12.32	N	MDM-T08S-R31E-27	T08S	R31E	MDM	27
USFS	7.80	N	MDM-T08S-R31E-29	T08S	R31E	MDM	29
USFS	15.39	N	MDM-T08S-R31E-3	T08S	R31E	MDM	3
USFS	7.24	N	MDM-T08S-R31E-30	T08S	R31E	MDM	30
USFS	170.53	N	MDM-T08S-R31E-31	T08S	R31E	MDM	31
USFS	4.22	N	MDM-T08S-R31E-33	T08S	R31E	MDM	33
USFS	12.95	N	MDM-T08S-R31E-34	T08S	R31E	MDM	34
USFS	12.59	N	MDM-T08S-R31E-4	T08S	R31E	MDM	4
USFS	8.98	N	MDM-T08S-R31E-5	T08S	R31E	MDM	5
USFS	7.44	N	MDM-T08S-R31E-6	T08S	R31E	MDM	6
USFS	0.42	N	MDM-T08S-R31E-7	T08S	R31E	MDM	7
USFS	0.08	N	MDM-T08S-R31E-8	T08S	R31E	MDM	8
USFS	48.37	N	MDM-T08S-R31E-9	T08S	R31E	MDM	9
USFS	24.38	N	MDM-T09S-R31E-11	T09S	R31E	MDM	11
USFS	0.53	N	MDM-T09S-R31E-12	T09S	R31E	MDM	12
USFS	12.55	N	MDM-T09S-R31E-14	T09S	R31E	MDM	14
USFS	17.65	N	MDM-T09S-R31E-2	T09S	R31E	MDM	2

Owner	Acreage	Transmission	MTRS	Township	Range	Meridian	Section
USFS	17.57	N	MDM-T09S-R31E-22	T09S	R31E	MDM	22
USFS	0.15	N	MDM-T09S-R31E-23	T09S	R31E	MDM	23
USFS	0.12	N	MDM-T09S-R31E-3	T09S	R31E	MDM	3
USFS	0.19	N	MDM-T09S-R31E-5	T09S	R31E	MDM	5
USFS	2.60	N	MDM-T09S-R31E-6	T09S	R31E	MDM	6
USFS	9.61	Y	MDM-T07S-R31E-25	T07S	R31E	MDM	25
USFS	4.48	Y	MDM-T07S-R32E-19	T07S	R32E	MDM	19
USFS	0.00	Y	MDM-T07S-R32E-20	T07S	R32E	MDM	20
USFS	11.29	Y	MDM-T07S-R32E-30	T07S	R32E	MDM	30
Private	0.00	N	MDM-T08S-R31E-6	T08S	R31E	MDM	6
USFS	0.00	N	MDM-T08S-R31E-6	T08S	R31E	MDM	6
SCE	0.01	N	MDM-T07S-R31E-25	T07S	R31E	MDM	25
USFS	0.01	N	MDM-T07S-R31E-25	T07S	R31E	MDM	25
SCE	0.02	N	MDM-T07S-R31E-35	T07S	R31E	MDM	35
USFS	0.02	N	MDM-T07S-R31E-35	T07S	R31E	MDM	35
SCE	0.01	N	MDM-T07S-R32E-19	T07S	R32E	MDM	19
USFS	0.01	N	MDM-T07S-R32E-19	T07S	R32E	MDM	19
SCE	0.00	N	MDM-T08S-R31E-21	T08S	R31E	MDM	21
USFS	0.00	N	MDM-T08S-R31E-21	T08S	R31E	MDM	21
SCE	4.32	N	MDM-T09S-R31E-14	T09S	R31E	MDM	14
USFS	0.40	N	MDM-T09S-R31E-23	T09S	R31E	MDM	23
USFS	0.12	N	MDM-T09S-R31E-15	T09S	R31E	MDM	15
SCE	19.81	N	MDM-T08S-R31E-16	T08S	R31E	MDM	16
Total	1065.47						

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Southern California Edison
Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT B
FINAL LICENSE APPLICATION

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT B

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

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ACRONYMS

B	
Bishop Creek	Project Bishop Creek Hydroelectric Project
BLM	Bureau Land Management
C	
cfs	cubic feet per second
F	
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act
K	
kW	kilowatt
L	
LADWP	Los Angeles Department of Water and Power
M	
MIF	minimum instream flow
O	
Operations Center	Eastern Hydro Operations Center
P	
Project	Bishop Creek Hydroelectric Project
S	
Sales Agreement	1933 Sales Agreement
SCE	Southern California Edison
U	
USGS	U.S. Geological Survey

Exhibit B
Statement of Operation and Resource Utilization

Section 5.18(a)(5)(iii) of Title 18 of the Code of Federal Regulations (CFR) (4-1-19 Edition) refers to Section 4.51 (License for Major Project – Existing Dam) for a description of information that an applicant must include in Exhibit B of its license application.

Exhibit B is a statement of project operation and resource utilization. If the project includes more than one dam with associated facilities, the information must be provided separately for each such discrete development. The exhibit must contain:

(1) A statement whether operation of the powerplant will be manual or automatic, an estimate of the annual plant factor, and a statement of how the project will be operated during adverse, mean, and high water years;

(2) An estimate of the dependable capacity and average annual energy production in kilowatt-hours (or a mechanical equivalent), supported by the following data:

- (i) The minimum, mean, and maximum recorded flows in cubic feet per second of the stream or other body of water at the powerplant intake or point of diversion, with a specification of any adjustments made for evaporation, leakage, minimum flow releases (including duration of releases), or other reductions in available flow; monthly flow duration curves indicating the period of record and the gauging stations used in deriving the curves; and a specification of the period of critical streamflow used to determine the dependable capacity;
- (ii) An area-capacity curve showing the gross storage capacity and usable storage capacity of the impoundment, with a rule curve showing the proposed operation of the impoundment and how the usable storage capacity is to be utilized;
- (iii) The estimated hydraulic capacity of the powerplant (minimum and maximum flow through the powerplant) in cubic feet per second;
- (iv) A tailwater rating curve; and
- (v) A curve showing powerplant capability versus head and specifying maximum, normal, and minimum heads;

(3) A statement, with load curves and tabular data, if necessary, of the manner in which the power generated at the project is to be utilized, including the amount of power to be used on-site, if any, the amount of power to be sold, and the identity of any proposed purchasers; and

(4) A statement of the applicant's plans, if any, for future development of the project or of any other existing or proposed water power project on the stream or other body of water, indicating the approximate location and estimated installed capacity of the proposed developments.

1.0 INTRODUCTION

Southern California Edison Company (SCE) is the licensee, owner, and operator of the Bishop Creek Hydroelectric Project (Bishop Creek Project), Federal Energy Regulatory Commission (FERC) Project No. 1394, located on Bishop Creek near the community of Bishop in Inyo County, California. Bishop Creek Project facilities are located within the Inyo National Forest and the John Muir Wilderness (managed by the U.S. Forest Service), and also include other federal lands managed by Bureau Land Management (BLM), as well as private lands. The Bishop Creek Project consists of five developments: Plants No. 2[1] through No. 6 on the Middle Fork of Bishop Creek, including three primary storage reservoirs: South Lake Reservoir, Sabrina Lake, and Longley Lake. The Bishop Creek Project utilizes diversions and flowlines that collect water from Green Creek (a tributary to Bishop Creek), Birch Creek, and McGee Creek. SCE currently operates the Project under a 30-year license issued by FERC on July 19, 1994 (FERC 1994). Because the current license will expire on June 30, 2024, SCE seeks a license renewal to continue operation and maintenance of Bishop Creek Project.

[1] Note to reader – in this document, the term “powerhouse” is used as a general reference to the structure; however, when referencing a specific structure the term “Plant” is used.

2.0 PROJECT OPERATIONS

Bishop Creek Hydroelectric Project (Bishop Creek Project) operation is dictated by water availability. The water scheduling priority is based on the requirements of a 1922 water rights ruling *(Hillside Water Company v. William A. Trickey et.al,* herein referred to as the "Chandler Decree") and with wintertime flows regulated by the 1933 Sales Agreement (Sales Agreement) between Southern Sierra Power Company (predecessor to SCE) and Los Angeles Department of Water and Power (LADWP). Both the Chandler Decree (1922) and the Sales Agreement establish the operating parameters of the Project; additional instream flow requirements arising from the FERC license are consistent with these parameters.

Flows not used to meet minimum flow requirements are used for generation. To determine the best configuration at each powerhouse, powerhouse operators consider unit availability and capacity.

The Bishop Creek Project consists of five developments: Plants No. 2 through No. 6; there is no Plant No. 1. The five Project powerhouses are automatically controlled from the Eastern Hydro Operations Center (Operations Center) location; however, the powerhouses can be operated manually should it be necessary.

2.1. BISHOP CREEK PLANT NO. 2

Plant No. 2 contains three main horizontal-shaft, single-overhung, single-jet, impulse turbines with an installed capacity of 7,320 kilowatts (kW). The powerhouse is remotely controlled by an automated system from the Operations Center. The system allows for remote unit load control and shutdown and requires operator intervention to return to service.

2.2. BISHOP CREEK PLANT NO. 3

Plant No. 3 contains three main horizontal-shaft, single-overhung, single-jet, impulse turbines with an installed capacity of 7,590 kW. The powerhouse is remotely controlled by an automated system from the Operations Center. The system allows for remote unit load control and shutdown and requires operator intervention to return to service.

2.3. BISHOP CREEK PLANT NO. 4

Plant No. 4 contains five main horizontal-shaft, single-overhung, single-jet impulse turbines with an installed capacity of 7,955 kW. The powerhouse is remotely controlled by an automated system from the Operations Center. The system allows for remote unit load control and shutdown and requires operator intervention to return to service.

2.4. BISHOP CREEK PLANT NO. 5

Plant No. 5 contains two main horizontal-shaft reaction turbines with an installed capacity of 4,100 kW. The powerhouse is remotely controlled by an automated system from the

Operations Center. The system allows for remote unit load control and shutdown and requires operator intervention to return to service.

2.5. BISHOP CREEK PLANT NO. 6

Plant No. 6 contains one main Pelton-type, horizontal-shaft, single-jet, double-overhung, hydraulic impulse turbine with an installed capacity of 1,600 kW. The powerhouse is remotely controlled by an automated system from the Operations Center. The system allows for remote unit load control and shutdown and requires operator intervention to return to service.

The estimated average annual plant factor for each Bishop Creek Project powerhouse since issuance of the current license (1995-2020) is provided in Table 2.5-1.

Table 2.5-1. Annual Plant Factor

Plant	Average Annual Generation (1995-2020) (MWh)	Installed Capacity (MW)	Dependable Capacity (MW)	Average Annual Plant Factor (%)
Plant No. 2	31,896	7.32	7.32	49.7
Plant No. 3	30,389	8.25	8.25	42.0
Plant No. 4	42,357	7.95	7.95	60.8
Plant No. 5	15,093	4.09	3.80[a.]	45.3
Plant No. 6	9,812	1.60	1.60	70.0
		29.21	28.92	

[a] Hydraulic limitations currently exist at Plant No. 5 that prevent simultaneously operating both turbines at rated capacity, thus reducing total plant effective capacity to 3.8 MW.

2.6. WATER MANAGEMENT

Powerhouse operation at the Bishop Creek Project is dependent on water availability. Snowpack, snow melt, spring rain events, drought, power demand, and irrigation all impact flow levels in the Project watershed, which in turn affect SCE's water-release schedule. The priorities for water scheduling are based on three factors: the Chandler Decree (1922), wintertime flow regulations as set in the 1933 Sales Agreement, and the minimum instream flow requirements set by FERC.

The Bishop Creek Project is operated in a manner consistent with existing FERC license requirements that are consistent with water rights and operating and water delivery agreements to generate power for SCE customers and deliver consumptive water to local users. This section focuses the discussion on operational constraints, which are defined as regulatory requirements and operating and water delivery agreements, followed by a description of water management throughout the Bishop Creek Project.

2.6.1. REGULATORY REQUIREMENTS

Regulatory requirements associated with the operation of the Bishop Creek Project include: 1) articles in the existing FERC license pertaining to minimum instream flow (MIF) and ramping rates; 2) the Chandler Decree (1922) and 1933 Sales Agreement; and 3) stipulations in existing water rights held by SCE.

2.6.1.1. FERC License Articles

The Bishop Creek Project is subject to water management provisions that address (1) annual consultation with agencies; (2) minimum instream flows; (3) pulse flows to disrupt redds in discreet reaches in Bishop Creek; and (4) geomorphic flows as described in Exhibit E, Appendix B (PME-1).

2.6.1.2. Operational Constraints

The Chandler Decree is the basis for determining how flows are allocated and used within the Bishop Creek Project (Table 2.6-1):

- Minimum Project flow-through (downstream delivery) requirements for senior downstream water rights holders are measured below Plant No. 6
- Minimum instream flow requirement of 0.25 cfs at the Birch-McGee diversion, for senior downstream water rights holders

Table 2.6-1. Daily Average Flow Requirements for Flow below Plant No. 6

Period	Daily Average Flow (cfs)	Instantaneous Minimum Flow (cfs)
April 1-15	44	33
April 16-30	68	51
May 1-15	87	65
May 16-31	98	74
June 1 - Jul 31	106	90
August 1-31	106	80
September 1-15	76	57
September 16-30	58	44

Source: Chandler Decree 1922

Both the Chandler Decree (1922) and the 1933 Sales Agreement provide priorities for water delivery; required instream flow requirements established by FERC are consistent with these priorities. SCE allocates water based on the historically successful management of storage reservoirs to facilitate meeting targets while avoiding spilled excess water. Storage reservoir monthly targets are based on categorization of the year type as normal, high or low-water year based on snow measurements. Wintertime flows

are regulated by the 1933 Sales Agreement, SCE, and LADWP. In low water years, correspondence with LADWP is regularly conducted and flow targets reassessed. This process sometimes results in adjusting flow releases for long-term storage management to prevent depleting the water resource.

2.7. WATER MANAGEMENT

The Bishop Creek Project is operated in a store-and-release mode, meaning water is held behind the dams for storage and then released downstream for generation of electricity and irrigation uses throughout the year. The Bishop Creek Project diverts water at five points: Green Creek at Bluff Lake, South Fork Bishop Creek at South Lake, Middle Fork Bishop Creek at Lake Sabrina, McGee Creek at Longley Lake, and Birch Creek at Birch-McGee Diversion (Figure 2.7-1). Each powerhouse and intake control the portion of water entering Bishop Creek below its respective intake reservoir.

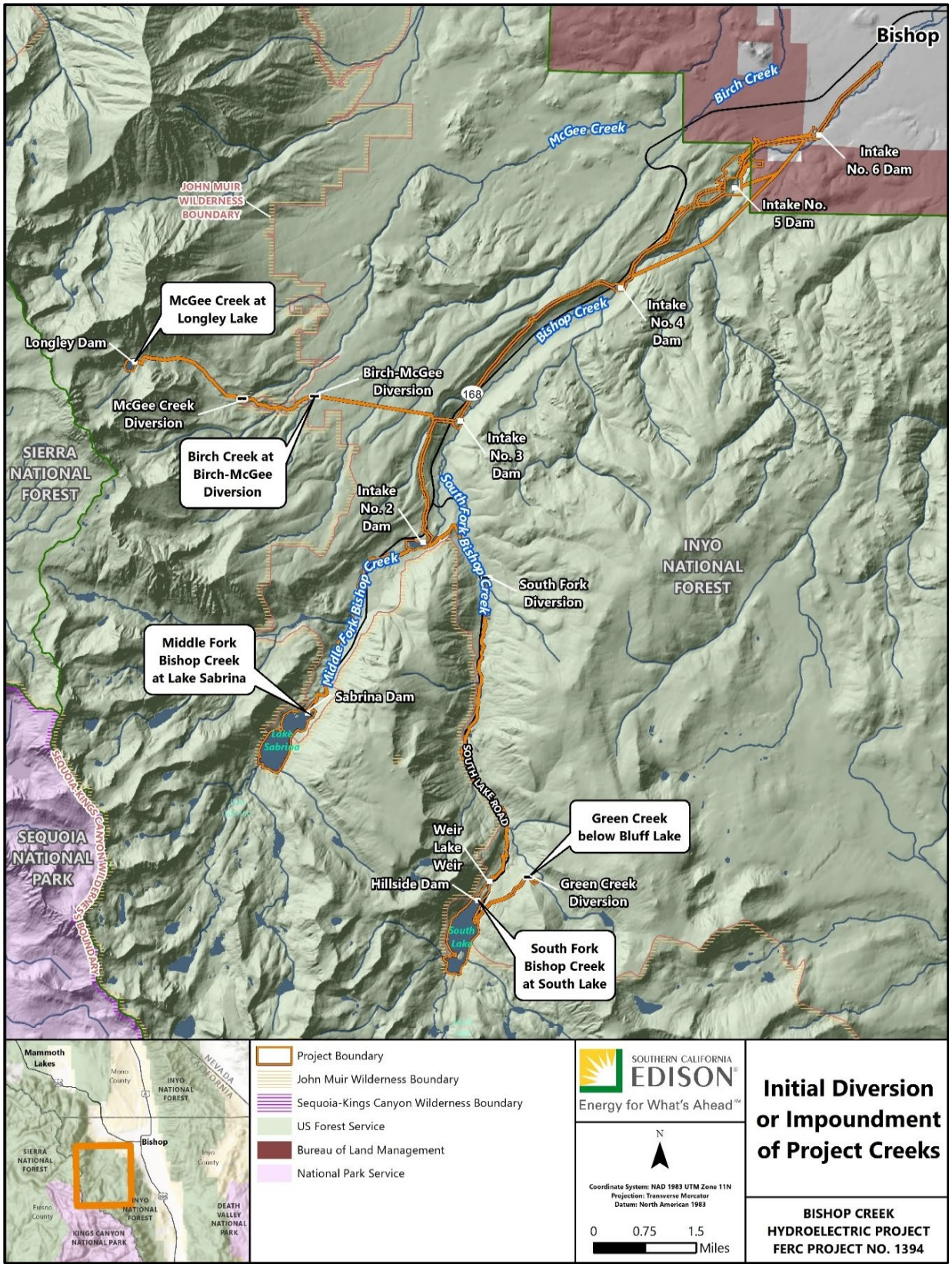

Figure 2.7-1. Initial Diversions or Impoundment of Project Creeks

3.0 CAPACITY AND PRODUCTION

Flow varies monthly, depending on the amount of runoff and on SCE's release schedule. At the lower end of the system, the peak runoff occurs from May to August.

The Bishop Creek Project begins diverting or impounding water at five points: Green Creek at Bluff Lake, South Fork Bishop Creek at South Lake, Middle Fork Bishop Creek at Lake Sabrina, McGee Creek at Longley Lake, and Birch Creek at Birch-McGee diversion. Plant No. 2 receives water originating from Longley Lake dam and the upper portions of the Birch Creek watershed. Longley Lake dam discharges water to McGee Creek, where it flows approximately 1 mile before being intercepted by the McGee Creek diversion. From there, water is diverted into a series of pipelines and open channels and delivered to Birch Creek. After entering Birch Creek, the water flows approximately 0.5 mile before being diverted again by the Birch-McGee diversion. At this point, the water enters a pipe where it descends over 1,100 feet in elevation before intercepting the penstock to Plant No. 2.

From this point on, a portion of the water flows down Bishop Creek while another portion is conveyed through a series of pipes and penstocks connecting Plants No. 2, through No. 6. Each powerhouse and intake controls the portion of water entering Bishop Creek and the portion directed into the pipe and penstock conveyances. After Plant No. 6, Bishop Creek flows to the community of Bishop and the Owens Valley. The 1.79-mile Abelour ditch carries a water right from Plant No. 6 penstock to the Rocking K subdivision. When Plant No. 6 is offline, there is an alternative take-off below Plant No. 5.

The regulated reaches between Lake Sabrina and Intake No. 2 and those between South Lake and South Fork diversion experience similar flow fluctuations. Because these reaches aggregate and convey all Bishop Creek Project flows, they are never as low as the flows in the diverted sections. During wet years, the regulated reaches have much higher flows. The license requires minimum flow releases into diverted reaches.

3.1. DAILY AVERAGE AVAILABLE FLOWS

SCE maintains a 96-year period of record for the Bishop Creek Project of monthly average total runoff, however extreme values are not available. Based on SCE's records, combined annual runoff averages 94 cfs, with calculated monthly mean flows ranging from 41 cfs to 259 cfs.

Some U.S. Geological Survey (USGS) gages are maintained within the system; however some gages have upper measurement limits, and available records are kept for daily averages rather than extremes. Exceptions to these limitations are gages downstream of the two primary storage reservoirs and flows upstream of Plant No. 6, which reflect the bypass reach. Minimum, mean, and maximum flows for these gages, including Plant No. 6 conduit gage are provided in Table 3.1-1. Although conduit flow records are limited to mean daily flows, they provide an estimated total flow available at the development under extreme conditions, with the average values reflective of the combined available flow.

Periods of record reflected in Table 3.1-1 are identical for all four gages dating from October 1990 to 2020.

Table 3.1-1. Historic Maximum, Minimum and Average Flows, Select Locations

Location	USGS Gage No.	Maximum Flow	Minimum Flow	Average Flow
Middle Fork below Lake Sabrina	10270872	270 cfs	3.6 cfs	30.1 cfs
South Fork below South Lake	10270800	168 cfs	1.9 cfs	25.5 cfs
Bishop Creek above Plant No. 6	10271200	453 cfs	0.0 cfs	22.1 cfs
Bishop Creek Plant No. 6 Conduit	10271060	156 cfs	0.0 cfs	76.9 cfs
Bishop Creek Plant No. 6 Total[a]	10271200 and 10271060	601 cfs	12.5 cfs	99.0 cfs

[a.] For extreme values at Plant No. 6, identical dates were combined rather than the combination of independent events.

3.2. IMPOUNDMENT CAPACITY

The operating powerhouses, in order of decreasing elevation, are numbered 2 through 6 and utilize the entire available head from an elevation of 8,099 feet (the intake of Plant No. 2) down to 4,512 feet (the nozzle of Plant No. 6). A common pool forms the afterbay of each upstream powerhouse and the forebay of the next powerhouse downstream.

There are a total of six reservoirs or impoundments in the Bishop Creek Project area; however, a majority have little significant storage capacity. Lake Sabrina and South Lake are the only major reservoirs associated with the Bishop Creek Project; Longley Lake and the Intake No .2 reservoir provide some storage capacity (Table 3.2-1).

Table 3.2-1. Project Impoundment Capacity

Reservoir Name	Capacity	Surface-Area
Longley Lake	178 acre-feet	11 acres
Intake No 2. Reservoir	78 acre-feet	12 acres
South Lake	12,883 acre-feet	173 acres
Lake Sabrina	7,350 acre-feet	195 acres

Stage-storage curves for the impoundments and stage-area curves are provided in Figure 3.2-1 through Figure 3.2-4. Only the normal full surface area is known for Intake No. 2 reservoir and South Lake. The stage-storage curves are reflective of usable storage, which is identical to gross storage for all four reservoirs.

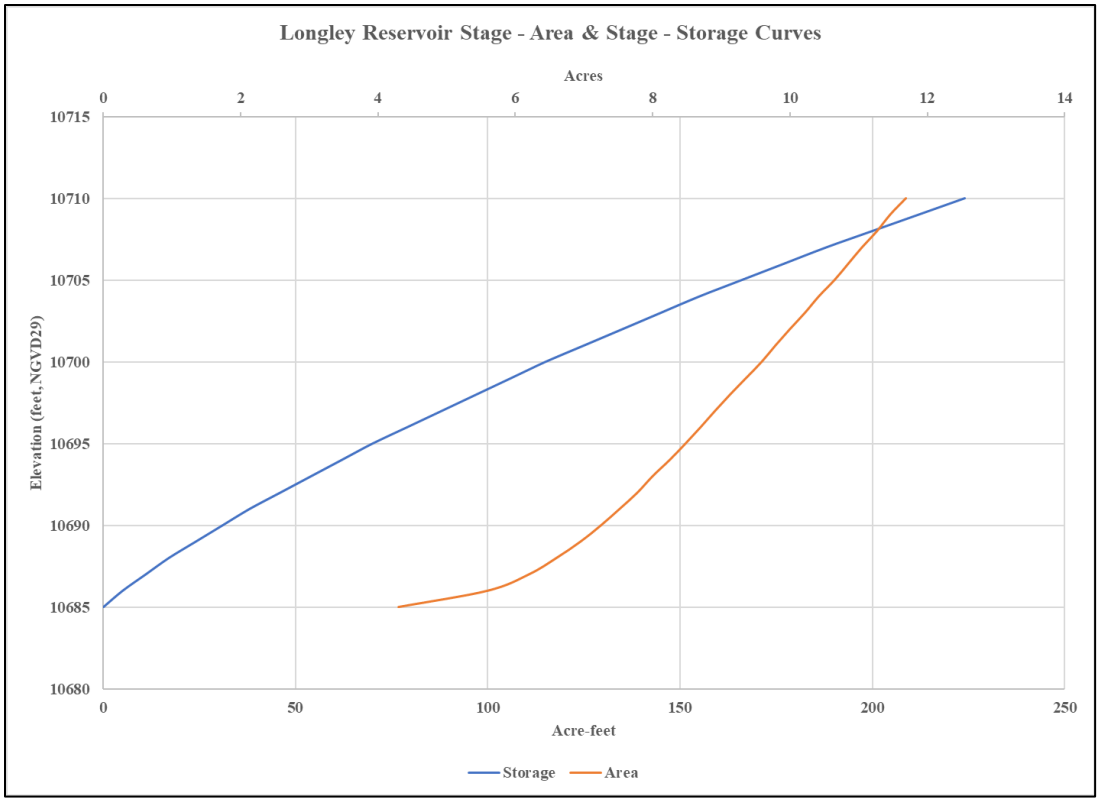

Figure 3.2-1. Longley Reservoir Storage and Area Curves

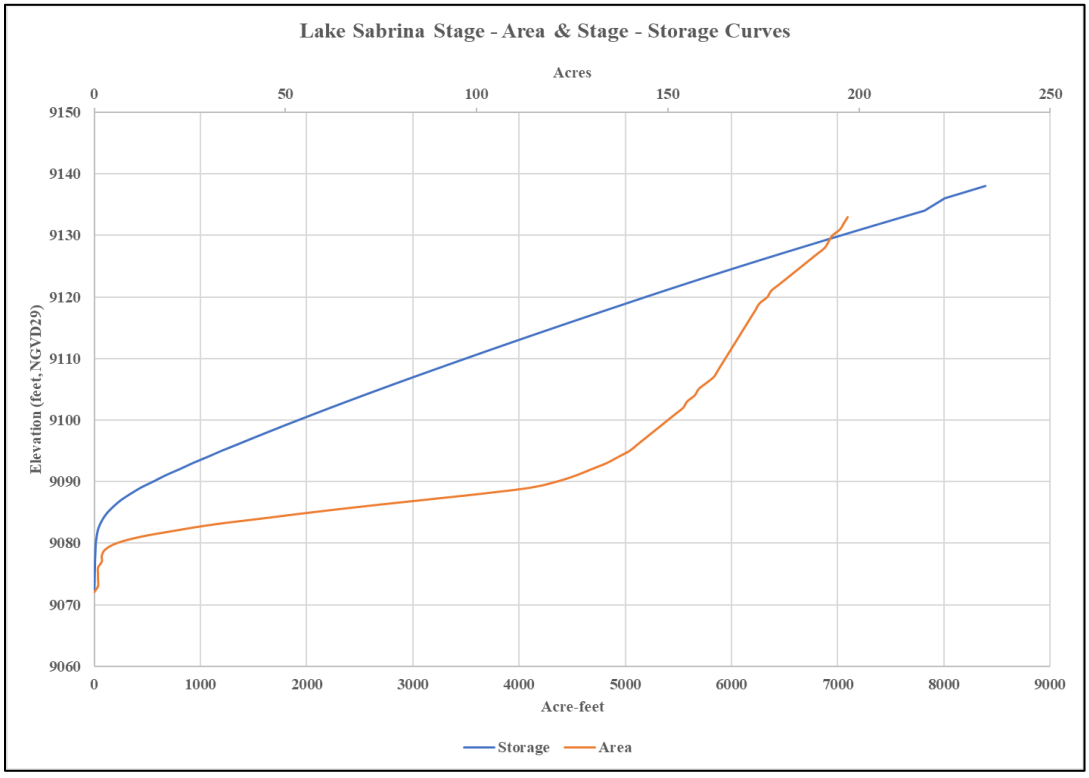

Figure 3.2-2. Lake Sabrina Storage and Area Curves

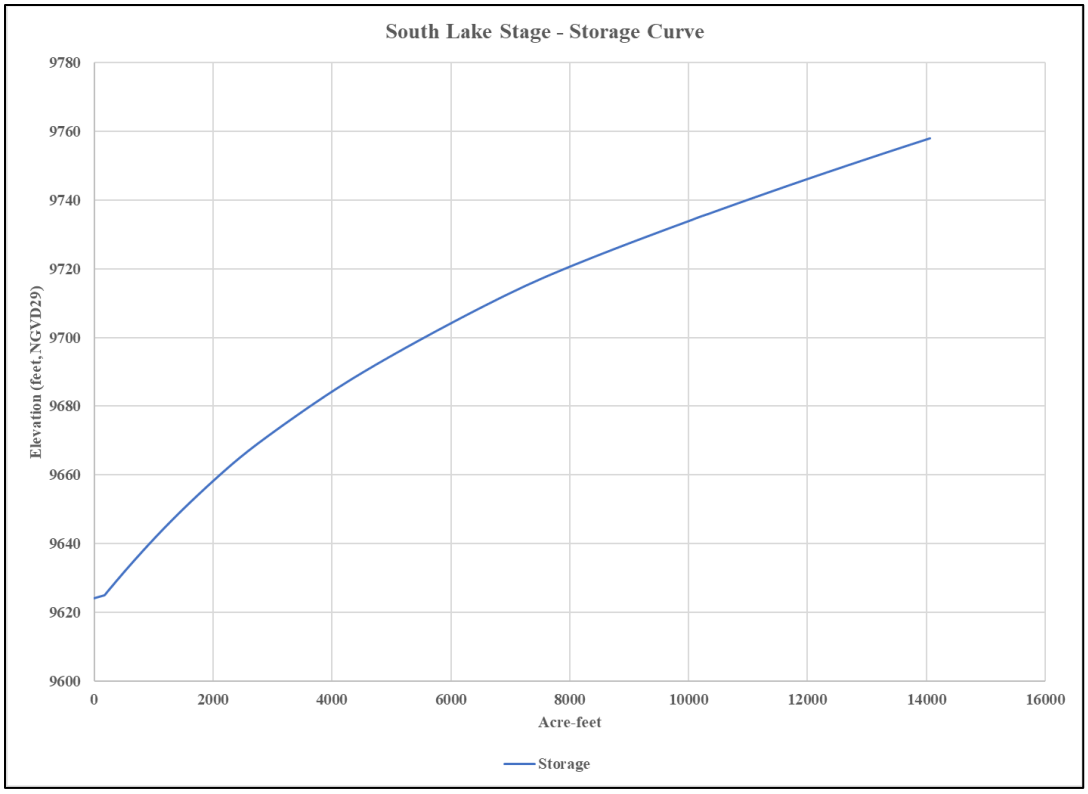

Figure 3.2-3. South Lake Storage Curve

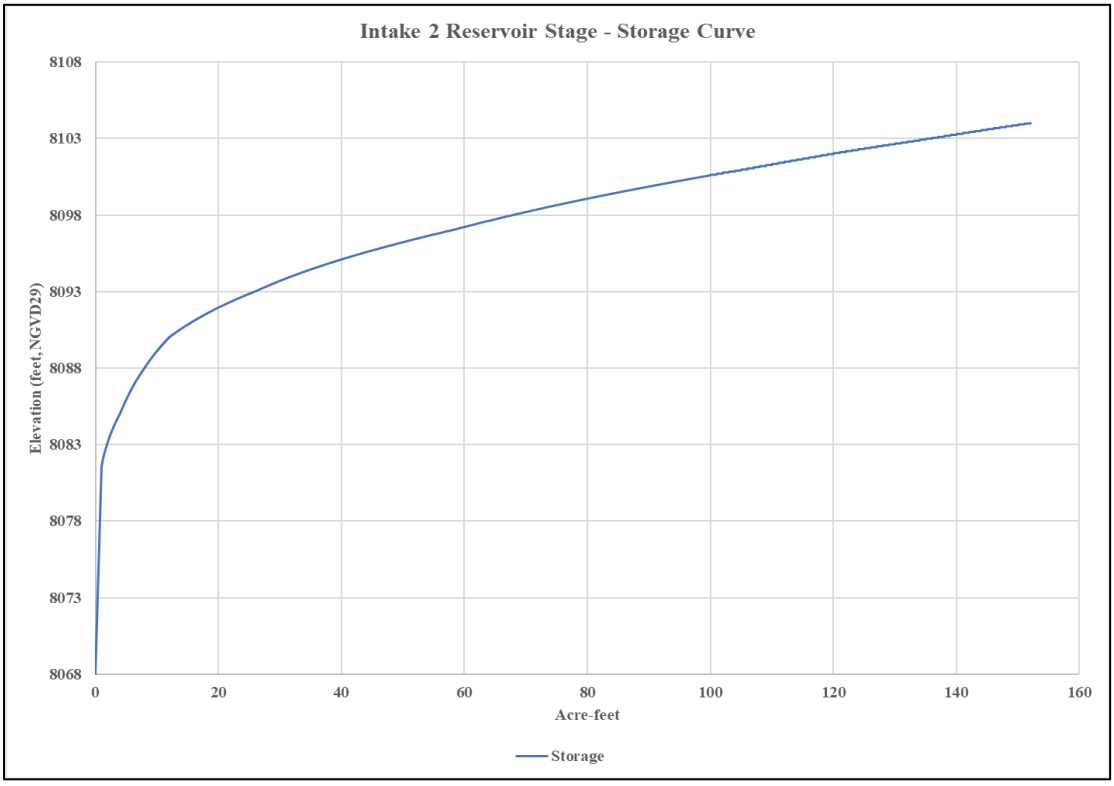

Figure 3.2-4. Intake No. 2 Reservoir Storage Curve

Neither Longley reservoir nor Intake No. 2 reservoir have adequate storage to augment flows on Bishop Creek. Outlets from Longley reservoir are adjusted to provide required flows to McGee Creek, while Intake No. 2 reservoir is normally kept full.

Lake Sabrina and South Lake seasonal storage are managed based upon whether the year is categorized as wet, normal, or dry. After meeting water right and minimum flow requirements, and meeting hourly or daily system load demands, Bishop Creek Project generation is increased or curtailed to target storage values reflective of the monthly starting average for each year type. During dry years, consultation can result in either more or less storage being retained during earlier months to meet longer term goals. In addition, adjustments to the target storage values may be made if the snow course measurements used to categorize the year type are within, but significantly above or below, the average for that year. Seasonal precipitation above or below normal may result in adjustments to storage targets. Typical curves showing the storage for each year type are provided in Figure 3.2-5 and Figure 3.2-6.

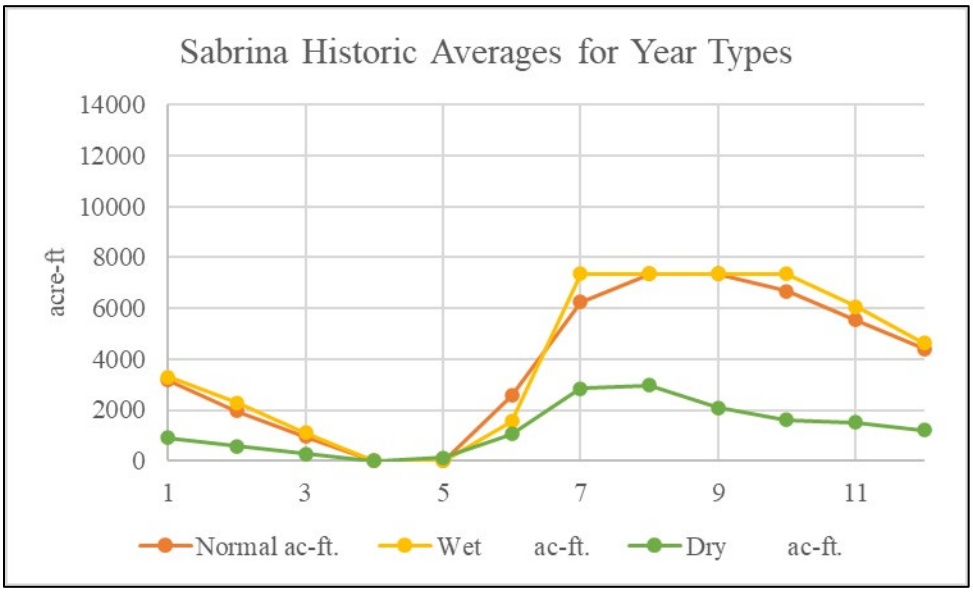

Figure 3.2-5. Lake Sabrina Target Storage by Year Type

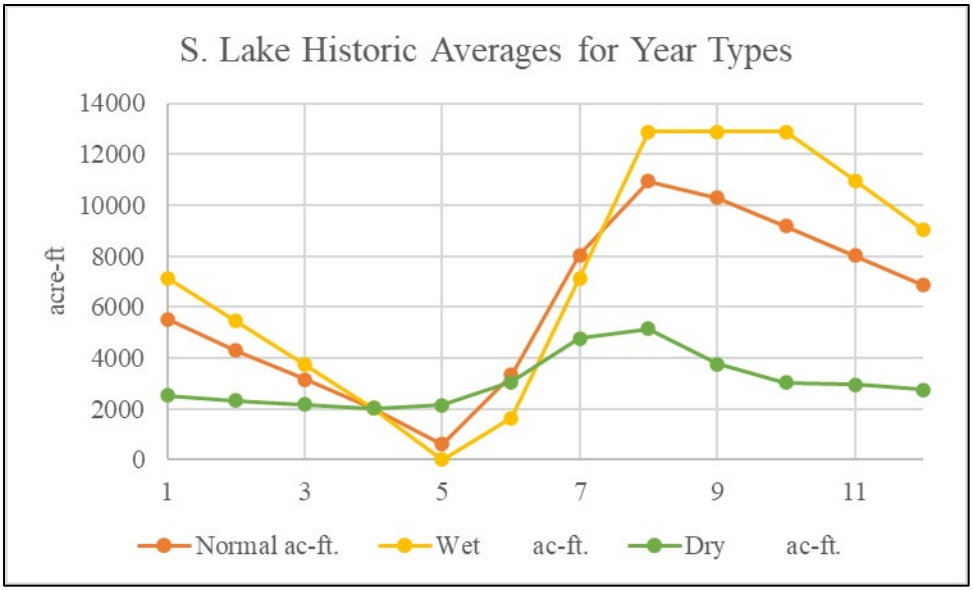

Figure 3.2-6. South Lake Target Storage by Year Type

3.3. HYDRAULIC CAPACITY

Maximum hydraulic capacity is measured in the tailrace of each powerhouse, while minimum hydraulic capacity values are estimated from performance data. Minimum hydraulic capacity is taken assuming operation of a single unit, and where applicable, the smallest turbine installed. The estimated operating ranges for each of the Bishop Creek Project powerhouses are as follows (Table 3.3-1).

Table 3.3-1. Estimated Plant Hydraulic Capacity Ranges

Plant	Minimum Estimated Hydraulic Capacity (CFS)	Maximum Estimated Hydraulic Capacity (CFS)
Plant No. 2	5	135
Plant No. 3	6	165
Plant No. 4	2	125
Plant No. 5	41	130
Plant No. 6	9	50

3.4. TAILWATER RATING CURVES

Each powerhouse in the system releases flow directly into the intake reservoir for the next downstream powerhouse. For example, for Plant No. 2, water is released from the impulse turbines directly into the intake of Plant No. 3. Plant No. 6 discharges directly into Bishop Creek.

Turbines in each powerhouse are set at or above the tailwater. Since the turbines are not submerged under the surface of a stream or reservoir, a tailwater rating curve is not

applicable in the calculation of capacity. The minor impact turbine releases have on the reservoir of the next powerhouse is insignificant to the gross head for each powerhouse.

The design head of each powerhouse is provided in Table 3.4-1.

Table 3.4-1. Plant Design Head

Plant	Gross Head (feet)
Plant No. 2	951
Plant No. 3	809
Plant No. 4	1,112
Plant No. 5	418
Plant No. 6	263

Virtually all the Bishop Creek Project's head is provided by topographic relief. Intake reservoir elevations are held relatively stable for all five powerhouses, and slight changes are insignificant relative to gross head as noted in Table 3.4-1. Water availability, rather than minor head changes at the reservoirs dictates dependable capacity. With long-term planning, Project storage is almost always available, and therefor dependable capacity is the maximum generating capacity for each powerhouse. Due to the lack of change in gross head associated with the minor changes in intake reservoirs, a capacity versus head curve is not applicable.

3.5. CAPACITY AND ENERGY

The dependable capacity of the Bishop Creek Project is approximately 28,921 kW and the average annual energy production is approximately 129,550 megawatt hours. The dependable capacity of each powerhouse is equal to the total rated capacity except for Plant No. 5. When both turbines are operated, hydraulic limitations reduce the combined flow below the sum of the turbines' individual maximum capacities. The estimated maximum capacity of the powerhouse, and the dependable capacity, is 3,800 kW compared to the combined rated generating capacity of 4,532 kW.

4.0 POWER UTILIZATION

Power generated at the Bishop Creek Project is utilized to help meet demand for energy in its service area. While Bishop Creek Project generation is most frequently increased during peak hours, the Project capacity is small relative to the service area's total demand. As such, load curves are not applicable to the Bishop Creek Project. A nominal portion of the output provides local power to operate Bishop Creek Project facilities.

5.0 FUTURE DEVELOPMENT

SCE currently has no plans for further development of the Bishop Creek Project operation or facilities.

6.0 REFERENCES

Chandler Decree 1922. Hillside Water Company v. William A. Trickey et.al, U.S. District Court, Southern Division of California (Northern Division), No. B-61 EQ, Final Decree in Equity (Chandler Decree), January 27, 1922 (Unreported).

Federal Energy Regulatory Commission (FERC). 1994. Order Issuing New License (Major Project) (Issued July 19, 1994) for Southern California Edison Company Project No. 1394-004, Bishop Creek Project.

Southern California Edison
Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT C
FINAL LICENSE APPLICATION

SOUTHERN CALIFORNIA EDISON®

An EDISON INTERNATIONAL® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT C

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

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1.0 CONSTRUCTION HISTORY

Bishop Creek Project developments were constructed during the following timeframes:

Time Frame	Project
1905–1907	Power Plant No. 4 constructed by NCP Two additional generating units added by 1907
1905	Intake No. 4 dam constructed (Now referred to as Old Intake No. 4)
1907, 1919	Power Plant No. 5 constructed and expanded by SSP
1908 ca.	South Fork Diversion Dam Intake and Flowline constructed by NCP
1908	Intake No. 2 and Equalizing Pond constructed by NCP
1908	Power Plant No. 2 constructed by NCP
1908–1911 (or 1922 ca.)	Weir Lake Flow Monitoring Dam constructed by NCP (Now referred to Weir Lake Weir and Gaging Station)
1909	Intake No. 2 replaced following washout constructed by NCP
1909–1910	Lake Sabrina dam constructed by NCP
1909	Longley Lake dam constructed by NCP
1910–1911	Hillside (South Lake) dam rebuilt downstream from site of ca. 1890s Hillside Water Company dam constructed by NCP
1912	New Intake No. 4 dam constructed by NCP
1912	Original Control Station constructed by SSP
1912–1913	Intake No. 3 constructed by NCP
1913	Power Plant No. 3 constructed by NCP
1913	Power Plant No. 6 constructed by SSP
1919	McGee Creek diversion and intake constructed by NCP
1919	West Fork Birch Creek diversion and intake constructed (now referred to as Birch McGee diversion and intake constructed by NCP
1919	East Fork Birch Creek diversion and intake constructed by NCP (Decommissioned in 1996.)
1919	Control station took over management and distribution of electricity generated by the combined NCP and SSP
1922 ca.	Lake Sabrina Weir and gauging station constructed by NCP
1925	Green Creek diversion and intake constructed by NCP

Note: NCP Nevada-California Power Company; SSP Southern Sierras Power Company

Bishop Creek Project power plants commenced operations as follows:

Time Frame	Project
1905	Power Plant No. 4 (NCP)
1907	Power Plant No. 5 (SSP)
1908	Power Plant No. 2 (NCP)
1913	Power Plant No. 3 (NCP)
1913	Power Plant No. 6 (SSP)

Note: NCP Nevada-California Power Company; SSP Southern Sierras Power Company

Bishop Creek Project (minus flowlines and penstocks; see below) has undergone the following upgrades and modifications since start-up (not including routine maintenance):

Time Frame	Project
1905–1913 ca.	Penstock No. 4-2 added
1907	Power Plant No. 4 electrical substation (Building 109) constructed
1908	Power Plant No. 4 expanded and additional transformers, a fifth water wheel, and generator added
1909	Lower 1,250 feet of wooden pipe in penstock no. 4-1 replaced with 625 feet of 36-inch-diameter steel pipe
1909	Intake No. 5 dam raised approximately 10 feet
1913	Remaining 900 feet of penstock no. 4-1 wooden pipe replaced with 400 feet of 36-inch-diameter steel pipe and 500 feet of 32-inch-diameter steel pipe
1916–1917	Lower portion of Lake Sabrina dam raised 12 feet vertically with concrete
1918–1920	Original Power Plant No. 4 electrical substation (Building 109) converted to office and recreational facility
1919	Penstock no. 5-2 added
1920	Steel rods added to Intake No. 4 dam as reinforcement
1923	Intake No. 2 diversion dam raised from 28 feet to 41 feet
1924	Intake No. 2 diversion dam extensively reinforced with steel rods, both vertically and horizontally
1927	One-story addition made to Power Plant No. 2
1929	A portion of the round Douglas fir timbers replaced in kind on Lake Sabrina dam and 30,254 square feet of 3 feet x 12 feet redwood planking added to the dam face
1934	8-foot-wide spillway channel added to north end of Longley Lake dam
1934	Power Plant No. 5 damaged by fire but repaired and operational within 5 days

Time Frame	Project
1930s ca.	Douglas fir timber sheathing on upstream face of South Lake dam replaced with redwood
1938	Power Plant No. 6 damaged by fire and rebuilt
1939	Semiautomatic equipment installed to operate Power Plant 5 remotely
1940	Semiautomatic equipment installed to operated Power Plant 6 remotely
1949	Power Plant No. 6 began continuous remote operation from control station
1950	Original timber-crib and rock-filled South Fork diversion dam replaced with a concrete dam on the same site. Intake pipe replaced with concrete structure.
1950	McGee Creek diversion dam extensively rebuilt
1950	West Fork Birch Creek diversion forebay enlarged
1950s ca.	South Lake dam 24-inch-diameter emergency waste pipes abandoned and encased in concrete and 24-inch-diameter steel valve pipe added to one end of the outlet tunnels
1951	Penstocks No. 4-1 and No. 4-2--1,100 feet of steel pipe removed and 1,100 feet of 54-inch-diameter steel common penstock installed beginning at the end of flowline no. 4
1953	Portions of steel pipe of Penstocks No. 4-1 and No. 4-2 removed, and 1,023 feet of 48-inch-diameter steel common penstock added, along with 180 feet of 30-inch-diameter steel pipe connecting with Penstock No. 4-1 and 513 feet of 48-inch-diameter steel pipe connecting with Penstock No. 4-2
1954	One-story addition added to Power Plant No. 3 control room building
1954	Intake No. 6 dam spillway partially reconstructed and raised 3 feet
1956–1957	Portions of concrete on Intake No. 3 diversion dam were chipped away and 40 yards of gunite applied to upstream and downstream faces. Portions of counterforts removed, steel added, and new concrete poured.
1956	Hydraulic hoists installed on Intake No. 4 dam slide and sluice gates
1957	Portions of Intake No. 5 Dam spillway reconstructed
1959	New central office building at Power Plant 4 constructed
1964	Upper 1,880 feet of Penstock No. 5-2 replaced
1965	Additions to original Power Plant No. 4 expanded.
1960s–1970s	Housing units at Power Plants No. 2, 3, 5, 6, and elsewhere around project (e.g., Birch McGee flowline) demolished. (Plant 4 becomes only location with onsite operators' housing)
1980–1981	West Fork Birch Creek diversion intake repaired and modified (now Birch McGee diversion and intake)

Time Frame	Project
1983	South abutment wing wall of Intake No. 4 dam rebuilt after storm damage. New dam footings excavated and rebuilt with concrete.
1994	License-required gaging and fishwater plans implemented at McGee Creek, Birch McGee Creek, South Fork diversion, and at Power Plants No. 2, 3, and 4.
1996	Birch Creek East diversion and intake and flowline decommissioned and left partially in situ.

Flowline-Specific Modifications include the following:

Time Frame	Project
1905	Flowline No. 4 constructed
1907	Flowline No. 5 constructed
1908	Flowline No. 2 constructed
1912–1913	Flowline No. 3 constructed.
1913	Flowline No. 6 constructed
1916–1917	6,402 feet of Flowline No. 4 replaced with 60-inch-diameter wood-stave flowline
1919	Flowline from West Fork Birch Creek to Penstock No. 2 constructed
1919	Flowline connecting East Fork Birch Creek to Penstock No. 2 constructed
1919	Flowline connecting McGee Creek with Birch Creek constructed
1920	Flowline from McGee Creek to Birch Creek extended with 1,600 feet of 14- to 12-inch-diameter steel pipe and 300 feet of covered wooden flume
1925	Green Creek flowline constructed
1925	Upper 600 feet of flowline no. 5 replaced with 60-inch-diameter redwood-stave pipe
1926	Wooden flume portion of McGee Creek flowline replaced with steel pipe
1933	Approximately 240 feet of flowline from West Fork Birch Creek to Penstock No. 2 replaced
1934	Several ditches and small pipes added to West Fork Birch Creek flowline connecting to the main flowline
1934	292 feet section of 8-inch-diameter steel pipe added midway on East Fork Birch Creek to Penstock No. 2 flowline to collect water from ditches running from the East Fork Birch Creek
1949	Approximately 200 feet of original Flowline No. 2 below Intake No. 2 replaced with 54-inch-diameter wood-stave pipe

Time Frame	Project
1949	80 feet of West Fork Birch Creek flowline replaced
1949	2,870 feet of Flowline No. 5 replaced with 60-inch-diameter redwood-stave pipe
1951	1,800 feet of original South Fork diversion flowline replaced with 54-inch-diameter redwood-stave pipe
1952	3,350 feet of original Flowline No. 2 replaced with 54-inch-diameter redwood-stave pipe
1953 and 1958	A total of 238 feet of the first 289 feet of storm-damaged Flowline No. 3 steel pipe replaced in 1953 and 1958
1954	540 feet of upper portion of Flowline No. 5 moved 15 feet east and replaced with 60-inch-diameter reinforced concrete pipe
1955	Remaining 4,600 feet of original Flowline No. 2 replaced with 54-inch-diameter redwood-stave pipe
1956	Upper 420 feet of Flowline No. 4 replaced with 43 feet of 54-inch-diameter steel pipe and 377 feet of 60-inch-diameter steel pipe
1959–1960	6,132 feet of wood-stave pipe in Flowline No. 3 replaced with steel pipe
1967–1968	Remaining 6,402 feet wood-stave pipe in Flowline No. 4 replaced with 60-inch-diameter steel pipe; a portion of the lower section of Flowline No. 4 was realigned
1972	50 feet of Flowline No. 6 wood-stave flowline pipe replaced with 60-inch-diameter steel pipe
1973	40 feet of snow-damaged Flowline No. 3 wood-stave pipe replaced in-kind
1976	50 feet of Flowline No. 6 wood-stave flowline pipe replaced with 60-inch-diameter
1983	Entire 9,600 feet of (what is now known as) Birch McGee Creek flowline replaced
1983	2,900 feet of Flowline No. 6 wood-stave pipe replaced with 60-inch-diameter steel pipe
1984	1,600 feet of steel pipe in McGee Creek flowline replaced
1984	80 feet of Green Creek flowline steel pipe replaced with 16-inch-diameter steel pipe
1985	1,100 feet of 34-in-diameter riveted steel pipe in flowline from South Fork diversion dam to equalizing reservoir at Intake No. 2 replaced with 38-inch-diameter steel pipe
1991	Entire flowline no. 2 wood-stave pipeline replaced: 126 feet of 48-inch-diameter steel, 9,712 feet of 54-inch-diameter steel, and 38 feet of 48-inch-diameter steel
1996	Birch Creek East flowline decommissioned and left partially in situ

Time Frame	Project
2009 ca.	Remaining wood sections of Flowline No. 5 converted to steel 60-inch-diameter pipe
2009 ca.	Remaining wood sections of Flowline No. 3 converted to steel 60-inch-diameter pipe

2.0 PROJECT SCHEDULE OF NEW DEVELOPMENT

The Bishop Creek Project is an existing development and no new construction or modification of any project structures is proposed at this time.

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project (FERC Project No. 1394)

EXHIBIT D
FINAL LICENSE APPLICATION

SOUTHERN CALIFORNIA EDISON®

An EDISON INTERNATIONAL® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT D

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

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7.0 Cost of Developing License Application 6
8.0 On-Peak and Off-Peak Values 6
9.0 Annual Change in Project Generation 6

LIST OF TABLES

Table 4.1. Estimated Costs (Annual O&M and Capital Costs)[1] 4

Exhibit D
Project Costs and Financing

Section 5.18(a)(5)(iii) of Title 18 of the Code of Federal Regulations (CFR) (4-1-19 Edition) refers to Section 4.51 (License for Major Project – Existing Dam) for a description of information that an applicant must include in Exhibit D of its license application.

Exhibit D is a statement of costs and financing. The statement must contain:

(1) If the application is for an initial license, a tabulated statement providing the actual or approximate original cost (approximate costs must be identified as such) of:

- (i) Any land or water right necessary to the existing project; and
- (ii) Each existing structure and facility described under paragraph (b) of this section (Exhibit A).

(2) If the Applicant is a licensee applying for a new license, and is not a municipality or a state, an estimate of the amount which would be payable if the project were to be taken over pursuant to section 14 of the Federal Power Act upon expiration of the license in effect [see 16 U.S.C. 807], including:

- (i) Fair value;
- (ii) Net investment; and
- (iii) Severance damages.

(3) If the application includes proposals for any new development, a statement of estimated costs, including:

- (i) The cost of any land or water rights necessary to the new development; and
- (ii) The cost of the new development work, with a specification of:
  - (A) Total cost of each major item;
  - (B) Indirect construction costs such as costs of construction equipment, camps, and commissaries;
  - (C) Interest during construction; and
  - (D) Overhead, construction, legal expenses, taxes, administrative and general expenses, and contingencies.

(4) A statement of the estimated average annual cost of the total project as proposed specifying any projected changes in the costs (life-cycle costs) over the estimated financing or licensing period if the applicant takes such changes into account, including:

- (i) Cost of capital (equity and debt);
- (ii) Local, state, and Federal taxes;
- (iii) Depreciation and amortization;
- (iv) Operation and maintenance expenses, including interim replacements, insurance, administrative and general expenses, and contingencies; and
- (v) The estimated capital cost and estimated annual operation and maintenance expense of each proposed environmental measure.

(5) A statement of the estimated annual value of project power, based on a showing of the contract price for sale of power or the estimated average annual cost of obtaining an equivalent amount of power (capacity and energy) from the lowest cost alternative source, specifying any projected changes in the cost of power from that source over the estimated financing or licensing period if the applicant takes such changes into account.

(6) A statement specifying the sources and extent of financing and annual revenues available to the applicant to meet the costs identified in paragraphs (e) (3) and (4) of this section.

(7) An estimate of the cost to develop the license application;

(8) The on-peak and off-peak values of project power, and the basis for estimating the values, for projects which are proposed to operate in a mode other than run-of-river; and

(9) The estimated average annual increase or decrease in project generation, and the estimated average annual increase or decrease of the value of project power, due to a change in project operations (i.e., minimum bypass flows; limits on reservoir fluctuations).

1.0 ORIGINAL COST

This is not an application for an initial license. Therefore, a statement of the original cost of Bishop Creek Hydroelectric Project (Project) land or water rights, structures, or facilities is not applicable.

2.0 TAKEOVER COMPENSATION

It is the intent of Southern California Edison Company (SCE) to continue to operate the Bishop Creek Project upon receipt of a new license. However, if the Bishop Creek Project were to be taken over at the expiration of the existing license, pursuant to Section 14 of the Federal Power Act, the amount payable to the Licensee includes the net investment, not to exceed the fair value. Some of the principles bearing upon the final determination of fair value are yet to be ascertained. SCE considers net investment to equal net book value; therefore, SCE is using net book value as a proxy for fair value. SCE estimates the Bishop Creek Project's net book value to be $30,138,243, calculated as the original cost, less depreciation as of 2020.

Pursuant to Section 14 of the Federal Power Act, SCE provides the following estimates:

Fair Value	$26,597,494
Net Investment	$26,597,494
Severance Damages	$26,597,494

3.0 NEW DEVELOPMENT COSTS

SCE does not propose any new development as part of this application, therefore a statement of estimated cost of new development is not applicable.

4.0 ANNUAL COST OF TOTAL PROJECT

The annual costs for the Bishop Creek Project include expenses for operations and maintenance (O&M) as well as capital improvement work.

(i) The current SCE Cost of Capital is listed below:

Long-Term Debt	2.04%
Preferred Equity	0.29%
Common Equity	5.36%
Total Cost of Capital	7.69%

(ii) Property taxes associated with the Bishop Creek Project for 2021 were $369,900. State and federal income taxes are computed for all of the SCE Hydro assets combined and no amount is specifically designated for this individual Project.

(iii) Depreciation for the Bishop Creek Project for 2021 was $1,634,433.

(iv) The average O&M expenses for the 5-year period 2015–2021 are $3,990,175. Additional Administrative and General (A&G) expenses totaled $746,616 in 2021.

(v) The estimated capital cost and estimated annual O&M expense (not including generation costs) of each proposed environmental measure is listed in Table 4.1. The net annual change in generation is also provided, with a sum of associated change in value provided in Section 9.0 Annual Change in Project Generation.

Table 4.1. Estimated Costs (Annual O&M and Capital Costs)[1]

PME Measure ID	Measure Name	Capital Cost	O&M Cost	MWh Change
PME-1[1]	Water Resources Management	$0	$125,000	339
PME-2	Sediment Management Plan	$0	$16,077	-162
PME-3	Stocking Plan	$0	$16,000	0
PME-4	Wildlife Resources Management Plan	$0	$35,000	0
PME-5	Botanical Resources Management Plan	$0	$8,606	0
PME-6	Invasive Species Management Plan	$36,000	$2,971	0
PME-7[2]	Recreation Resources Management Plan	$2,500,000	$25,000	0
PME-8[2]	Historic Resources Management Plan	$0	$8,500	0
	Totals	$2,536.000	$237,154	177

[1] Excluding changes to generation from implementing measures
[2]These measures are expected to be updated via a supplemental filing; revised capital and O&M costs will be updated at the same time.

5.0 VALUE OF PROJECT POWER AND BASIS

The value of the Bishop Creek Project power is quantified through three market products: energy value, capacity value, and renewable energy credits (RECs). Energy produced by the plant is valued based on CAISO wholesale market prices. Capacity value is based on expected future capacity prices. REC prices are based on the expected price to buy or sell RECs in the future.

The Bishop Creek Project's projected value is determined by first estimating the production of the plants. The estimated annual amount of energy produced from the Bishop Creek Project was derived from a 20-year annual average of historical production from 2001 to 2020.

The forecasted production (megawatt hours) for the Bishop Creek Project was multiplied by the marginal energy cost forecast and the REC price forecast, and the expected capacity of the Project was multiplied by the marginal capacity cost forecast. The sum of the three products is the total value that SCE would expect from the power being provided by the Bishop Creek Project.

SCE estimates the 2021 Energy Value ($/MWh) to be $42.41, the 2021 REC Value ($/MWh) to be $14.49 and the 2021 Capacity Value ($/kW-year) to be $41.52 (refer to Exhibit E, Section 11 – Economic Analysis).

6.0 SOURCES AND EXTENT OF FINANCING

As previously discussed in Section 3.0 New Development Costs, there is no new development planned for the Bishop Creek Project. As such, special financing for any major capital work is not required.

SCE previously filed a General Rate Case (GRC) with the California Public Utilities Commission (CPUC), which was approved in August 2021. Included in the GRC filing were the generation-related O&M expenses as well as A&G expenses. The GRC filings included the expected costs for the years of 2021–2023, which are associated with the O&M of all the SCE Hydro assets, as well as the costs associated with any anticipated incremental capital additions. The capital and O&M expenses necessary for continued operation of the Bishop Creek Project would be collected through those approved rates. The approved rates would include costs associated with license condition requirements that might be imposed upon the Project in the new license.

The Bishop Creek Project is operated as a component of the entire Hydro Generation Division, which is part of the Power Supply Department of SCE. The O&M expenses for the Bishop Creek Project are therefore not wholly estimated at the division or department level, as the departmental costs are usually extrapolated from historical costs. Any financing charges required for individual projects would normally be included in the overall department budget and would not be directly attributable to the individual project.

7.0 COST OF DEVELOPING LICENSE APPLICATION

As of the filing of this application, the SCE has spent $4,964,085 developing materials, conducting studies, and consulting with stakeholders. It is anticipated that the final cost of developing the application will be $5,001,000.

8.0 ON-PEAK AND OFF-PEAK VALUES

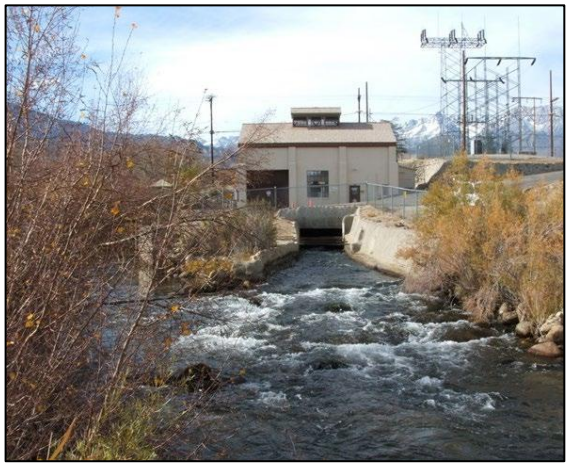
The Bishop Creek Project is operated in a run-of-river mode. Therefore, a statement of the on-peak and off-peak values of project power is not applicable.

9.0 ANNUAL CHANGE IN PROJECT GENERATION

Due to changes in the Bishop Creek Project operations under the Proposed Action, it is estimated that the average annual Project generation would slightly increase by approximately 176 megawatt hours, resulting in a net increase in the value of Project power of approximately $7,466 per year (this value increases to $10,016 when taking Renewable Energy Credit values into account).

Southern California Edison

Bishop Creek Hydroelectric Project (FERC Project No. 1394)



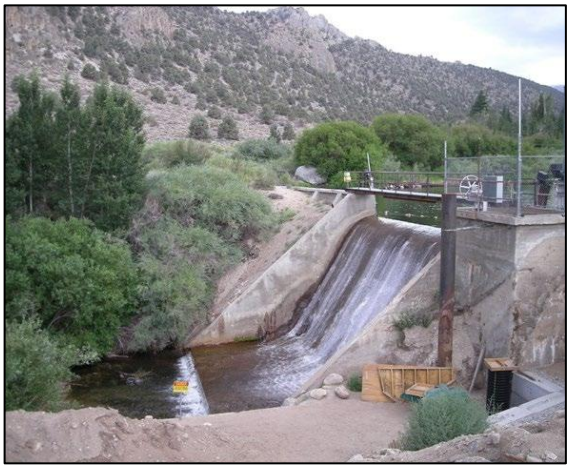


EXHIBIT G
FINAL LICENSE APPLICATION

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT G

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

1.0 PROJECT WORKS AND FEATURES

Southern California Edison Company (SCE) is the licensee, owner, and operator of the Bishop Creek Hydroelectric Project (Bishop Creek Project or Project), Federal Energy Regulatory Commission (FERC) Project No. 1394 located on Bishop Creek near the community of Bishop in Inyo County, California. Bishop Creek Project facilities are located within the Inyo National Forest (INF) and the John Muir Wilderness (managed by the U.S. Forest Service [USFS]), and include lands managed by Bureau Land Management (BLM) and private lands. The Bishop Creek Project consists of five developments: Power Plants No. 2 through No. 6 on the Middle Fork of Bishop Creek and three primary storage reservoirs that include South Lake, Lake Sabrina and Longley Lake.

The Bishop Creek Project has a total dependable generating capacity of 28,925 kilowatts (kW) and has an average annual energy production of 128,039 megawatt hours (MWh). Stored water is transported through a series of connecting flowlines and penstocks to the plants and then returned to the river through the tailrace at Plant No. 6. Under the existing Project license, the FERC Project boundary encompasses 1082.2 acres, including 781.4 acres of federal lands administered by either the U.S. Department of Agriculture (USDA) Forest Service or the BLM, and 300.9 acres of SCE-owned or private land. SCE does not propose any changes to Project O&M and does not propose any new construction.

The Exhibit G maps(Appendix A) denote the Bishop Creek Hydroelectric Project (Bishop Creek Project or Project) boundary. SCE is proposing to add and remove lands from the Project Boundary as part of this license application process. The lands detailed in this Exhibit G are needed for operation and maintenance of the Project or for recreational or resource protection purposes. Exhibit G, Sheet 1, shows the proposed Project Boundary.

2.0 FEDERAL LANDS

A calculation of the existing and proposed Project Boundary acreage is outlined below in Table 2.1. Data have been derived from a variety of sources, including federal, state, and county GIS data sources. Appendix B is the BLM Form-587, documenting federal lands within the Public Land Survey System for Public Land States.

Table 2.1 Land Ownership within Project Boundary

Ownership	Current	Proposed Acreage
U.S. Forest Service	733.8	757.6
Bureau of Land Management[1]	47.6	50.7
Non-federal	300.9	257.1
Total Project Acreage[2]	***1082.3***	**1065.5**

[1]Change in Bureau of Land Management lands reflects no new acreages; but rather recalculation of existing lands using GIS mapping
[2]SCE anticipates that land-ownership and boundary adjustments may need to be made concurrent with supplemental filings to be made to the Recreation Management Plan (PME-7)

3.0 PROJECT BOUNDARY MAP

Minor changes/mapping corrections to the Project boundary have been made based on improved accuracy of available data. Examples of mapping corrections include improved centerlines and buffers for roads, flowlines, creeks, or transmission lines that are contemplated in the Project boundary but not accurately represented in the GIS data.

In addition to the corrections noted above, SCE analyzed the current Project Boundary and whether lands should be added or removed. SCE has proposed adjustments to the Project boundary to better reflect the O&M activities of the Project as reflected the LANDS-1 memorandum, filed with Exhibit E.

The following table provides a summary of the drawing numbers and titles for the Exhibit G maps. The Project boundary maps show the Project vicinity, location, and boundary in sufficient detail to provide a full understanding of the Projects. The Exhibit G maps were prepared in accordance with the requirements of 18 Code of Federal Regulations [C.F.R. § 4.51(h)]. The Exhibit G maps are approved and stamped by a registered land surveyor.

Drawing Number	Title
Exhibit G – Sheet 0	Project Boundary Map - Overview
Exhibit G - Sheet 1 of 14	Project Boundary Map
Exhibit G - Sheet 2 of 14	Project Boundary Map
Exhibit G - Sheet 3 of 14	Project Boundary Map
Exhibit G - Sheet 4 of 14	Project Boundary Map
Exhibit G - Sheet 5 of 14	Project Boundary Map
Exhibit G - Sheet 6 of 14	Project Boundary Map
Exhibit G - Sheet 7 of 14	Project Boundary Map
Exhibit G - Sheet 8 of 14	Project Boundary Map
Exhibit G - Sheet 9 of 14	Project Boundary Map
Exhibit G - Sheet 10 of 14	Project Boundary Map
Exhibit G - Sheet 11 of 14	Project Boundary Map
Exhibit G - Sheet 12 of 14	Project Boundary Map
Exhibit G - Sheet 13 of 14	Project Boundary Map
Exhibit G - Sheet 14 of 14	Project Boundary Map

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project (FERC Project No. 1394)

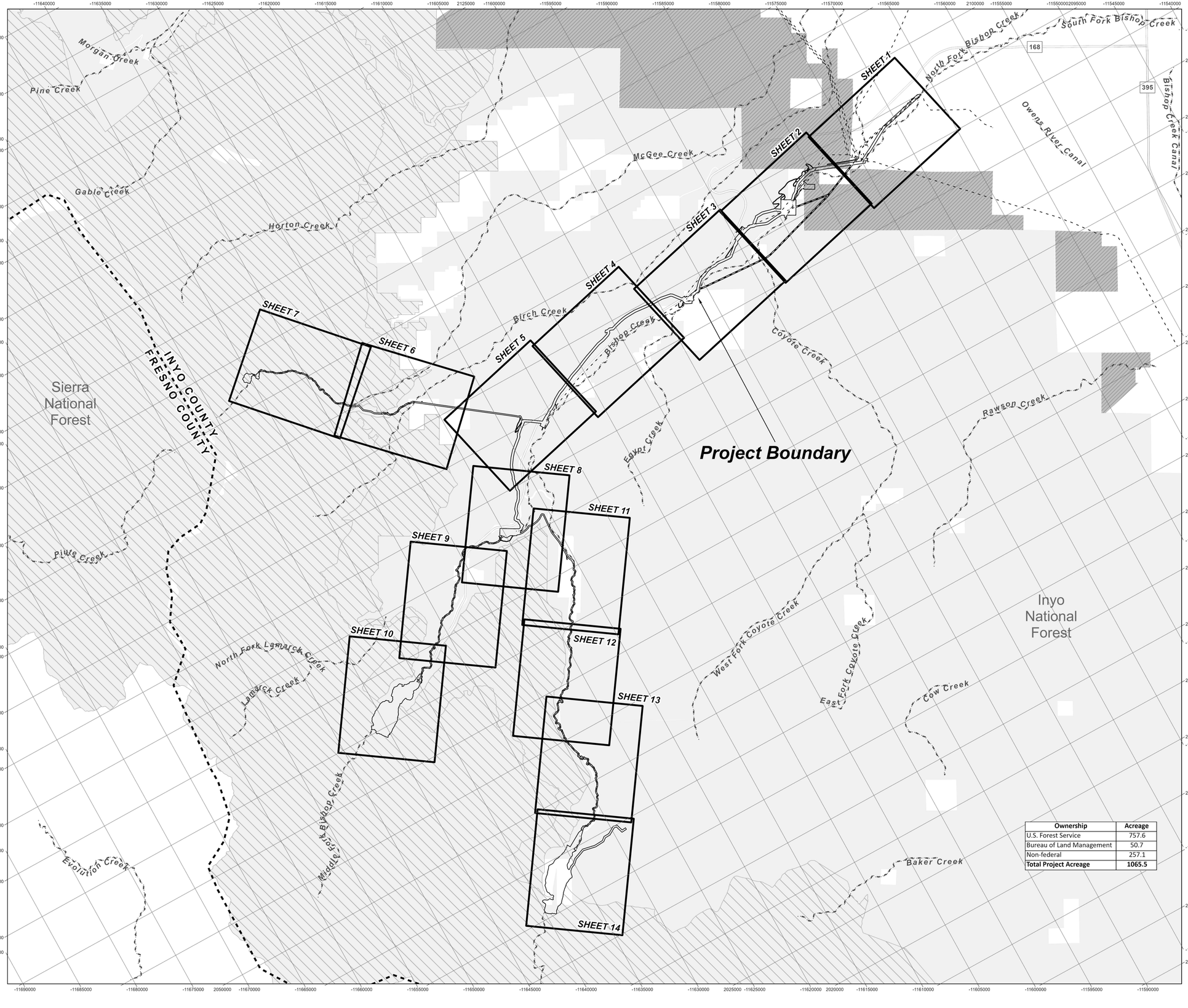
FINAL LICENSE APPLICATION APPENDIX A

EXHIBIT G MAPS

June 2022

Support from:

Kleinschmidt



Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

12.38°W
1/18/2022

- Project Boundary (Draft)
- Map Index
- Transmission Line
- Hydrography
- Highway
- BLM Land
- USFS Land
- John Muir Wilderness Area
- County

Map notes:
1. The Bishop Creek Project is located in the State of California in Inyo County.
2. Reference Point coordinates are shown in NAD 1983 StatePlane California IV FIPS 0404 Ft US.
3. Elevations shown are referenced to MSL, where NAVD88 = MSL + 2.73 ft. Conversion factor was determined from NOAA tidal benchmark at Rincon Island, Pacific Ocean, CA, Station ID 9411270.
4. Licensee has acquired all flowage rights and title in fee or the right to use in perpetuity all lands necessary or appropriate for the construction, maintenance, and operation of the Project. All property records are kept on file with the licensee.
5. Federal Lands are represented on this Exhibit G.
6. The Project boundary description, as required by 18 CFR 4.41, is represented here by a grid of Northings and Eastings around, and graticules within, the map frame. Any position in Northings and Eastings along the Project boundary can be determined using these references.

SURVEYORS STATEMENT

I HEREBY CERTIFY TO THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) THAT THIS PLAN MEETS THE CONDITIONS SET FORTH BY FERC FOR ITS EXPRESSED PURPOSE. THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP - OVERVIEW

EXHIBIT G | SCALE: 1" = 4,000' | SHEET NO. 0 OF 14

0 2,500 5,000 10,000 15,000 20,000 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

Reference Point 1-1
N: 2371855.98553
E: 6710449.32388

Reference Point 1-2
N: 2373593.283925
E: 6714557.723252

Reference Point 1-3
N: 2369137.923916
E: 6715652.149288

Project Boundary (100' Buffer of Penstock C/L)

Project Boundary (50' Buffer of Transmission Line)

Project Boundary (20' Buffer of Stream Gage)

INSET 2

SEE INSET 2

SEE INSET 1

USGS Gage No. 10-2709.65
SCE Gage No. 591

USGS Gage No. 10-2710.60
SCE Gage No. 518

USGS Gage No. 10-2712.00
SCE Gage No. 592

Abelour Ditch

Bishop Creek

Powerhouse No. 6

Powerhouse No. 5

Powerhouse 5 Penstock No. 1

Powerhouse 5 Penstock No. 2

Flowline 6

Intake No. 6 Dam

Spoils/Staging Area

Company Housing

0.17 Ac.

CONTROL-PLANT 2

CONTROL-SILVER PEAK-ZACK-

CASA DIABLO-CONTROL-SIERWIN

CASA DIABLO-CONTROL-

CONTROL-MT-TOM

CONTROL-PLANT 5-PLANT 6

CONTROL-PLANT 3-PLANT 4

CONTROL-HAWIEE-INYOKERN

CONTROL-COSO-HAWIEE-INYOKERN

CONTROL-INYO

SAND CANYON RD

Plant 5 Road (West)

PLANT FIVE RD

ED POWERS RD

POWER LINE RD

PLANT SIX RD

168

T07S-R32E-01

T07S-R32E-20

T07S-R32E-21

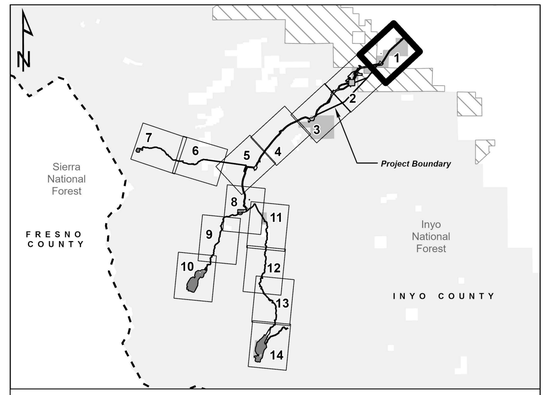
T07S-R32E-16

T07S-R32E-9

T07S-R32E-15

T07S-R32E-10

MATCH LINE SHEET 2



12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
Penstock
Diversion
Transmission Line

Project Recreation
Boating Access
Fishing Access
SCE-Owned Land
Private Ownership
BLM Land
USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
Highway
Hydrography
Waterbody
County
Match Line

Map notes:
1. The Bishop Creek Project is located in the State of California in Inyo County.
2. Reference Point coordinates are shown in NAD 1983 StatePlane California IV FIPS 0404 Ft US.
3. Elevations shown are referenced to MSL, where NAVD88 = MSL + 2.73 ft. Conversion factor was determined from NOAA tidal benchmark at Rincon Island, Pacific Ocean, CA, Station ID 9411270.
4. Licensee has acquired all flowage rights and title in fee or the right to use in perpetuity all lands necessary or appropriate for the construction, maintenance, and operation of the Project. All property records are kept on file with the licensee.
5. Federal Lands are represented on this Exhibit G.
6. The Project boundary description, as required by 18 CFR 4.41, is represented here by a grid of Northings and Eastings around, and graticules within, the map frame. Any position in Northings and Eastings along the Project boundary can be determined using these references.
7. The Project boundary surrounding project roads follows at a 15' buffer.

SURVEYORS STATEMENT

I HEREBY CERTIFY TO THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) THAT THIS PLAN MEETS THE CONDITIONS SET FORTH BY FERC FOR ITS EXPRESSED PURPOSE. THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 1 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

Reference Point 2-1
N: 2365561.718322
E: 6702560.2771

Reference Point 2-2
N: 2370385.137417
E: 6707533.476583

Reference Point 2-3
N: 2362115.899239
E: 6707335.156623

SAND CANYON RD

N2006

168

USFS 08S10T (Spoils area between CA Hwy 168 and Plant 4 Penstocks)

USFS 07S110A (Spoils area between CA Hwy 168 and Plant 4 Penstocks)

USFS 07S110 (Along Plant 4 Penstock 2)

USFS 07S110 (Flowline 5 to Plant 4 Penstocks)

Project Boundary (100' Buffer of Penstock C/L)

Project Boundary (50' Buffer of Transmission Line)

0.89 Ac.

2.06 Ac.

Spoils Land

Powerhouse 4 Penstock No. 1

36.25 Ac.

07s105

CONTROL-PLANT 2

Powerhouse 4 Penstock No. 2

N2063

Access to Repeater Site

USGS Gage No. 10270700
SCE Gage No. 2324

SEE INSET

Flowline 5

T07S-R32E-18
T08S-R32E-13

0.25 Ac

17.39 Ac.

Powerhouse 5 Penstock No. 2

Powerhouse 5 Penstock No. 1

18.20 Ac.

Plant 5 Road (West)

SCE Gage No. 2328

Intake No. 5 Dam

Powerhouse No. 4

Bishop Creek

N2073

CONTROL-PLANT 3-PLANT 4

Coyote Creek

PRIVATE OWNERSHIP

4.48 Ac.

14.73 Ac.

11.29 Ac.

T07S-R32E-19
T07S-R32E-30
T07S-R32E-20
T07S-R32E-29

07s116

07s109

07s115

MATCH LINE SHEET 3

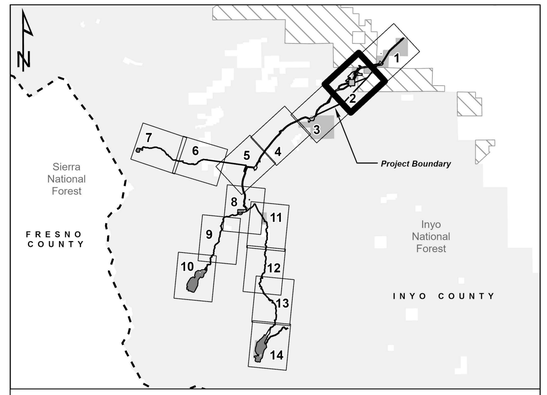
MATCH LINE SHEET 1

INYO NATIONAL FOREST

INSET

Flowline 5

E BISHOP CREEK RD



12.38°W
1/18/2022

- Project Boundary (Draft)
- Project Features
- Project Road
- Project Trail
- Stream/Reservoir Gage
- Penstock
- Diversion
- Transmission Line

Project Recreation
- Boating Access
- Fishing Access
- SCE-Owned Land
- Private Ownership
- BLM Land
- USFS Land
- John Muir Wilderness Boundary

- Reference Point
- USFS Trail
- Road
- Highway
- Hydrography
- Waterbody
- County
- Match Line

Map notes:
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SURVEYORS STATEMENT

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STATE OF WASHINGTON
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 2 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

INYO NATIONAL FOREST

Project Boundary (100' Buffer of Penstock C/L)

Reference Point 3-1
N: 2358520.414555
E: 6696652.428738

Reference Point 3-2
N: 2362883.368926
E: 6700496.597986

N2009

N2008

BUTTERMILK RD

28.24 Ac.

Powerhouse 3 Penstock

W BISHOP CREEK RD

Egypt Creek

T07S-R31E-26
T07S-R31E-35
T07S-R31E-25
T07S-R31E-36

BISHOP CRK ENTRANCE STA

168

Powerhouse 4 Penstock No. 2

Powerhouse 4 Penstock No. 1

CONTROL-PLANT 2

Flowline 4

35.81 Ac.

USFS 07S110 (Along Flowline 4)

Bishop Creek

USFS 08S10T (Spoils area between CA Hwy 168 and Plant 4 Penstocks)

Project Boundary (100' Buffer of Penstock C/L)

SEE INSET

9.61 Ac.

CONTROL-PLANT 3-PLANT 4

SKYROCK DR

PRIVATE OWNERSHIP

Project Boundary (50' Buffer of Transmission Line)

T07S-R31E-25
T07S-R31E-36
T07S-R32E-30
T07S-R32E-31

MATCH LINE SHEET 4

MATCH LINE SHEET 2

Reference Point 3-3
N: 2359231.155788
E: 6705935.213954

Coyote Creek

07s129

07s109

INSET

Powerhouse 3 Penstock

Powerhouse No. 3

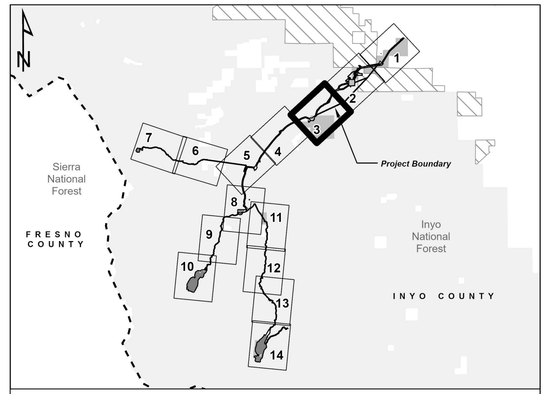
USFS 07S110 (Along Flowline 4)

Powerhouse No. 4 Dam

Flowline 4

USGS Gage No. 10-2700.40
SCE Gage No. 324A

SCE Gage No. 324B



12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
Penstock
Diversion
Transmission Line

Project Recreation
Boating Access
Fishing Access
SCE-Owned Land
Private Ownership
BLM Land
USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
Highway
Hydrography
Waterbody
County
Match Line

Map notes:
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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 3 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

MATCH LINE SHEET 5

MATCH LINE SHEET 3

Birch Creek

Reference Point 4-1
N: 2353060.34503
E: 6687059.546621

T07S-R31E-33
T06S-R31E-4
T07S-R31E-34
T08S-R31E-3

Project Boundary
(100' Buffer of Penstock C/L)

BUTTERMILK RD

Temporary Storage/Laydown
for Flowline Maintenance

Reference Point 4-2
N: 2355452.42264
E: 6691591.494644

N2034

Flowline 3

20.34 Ac.

15.39 Ac.

USFS 07S15B
(Along Flowline 3)

Powerhouse 3 Penstock

T07S-R31E-27
T07S-R31E-34
T07S-R31E-26
T07S-R31E-35

168

CONTROL-PLANT 2

Reference Point 4-3
N: 2352479.39136
E: 6690865.700845

07s108

08s112

N2055

N2052

Bishop Creek

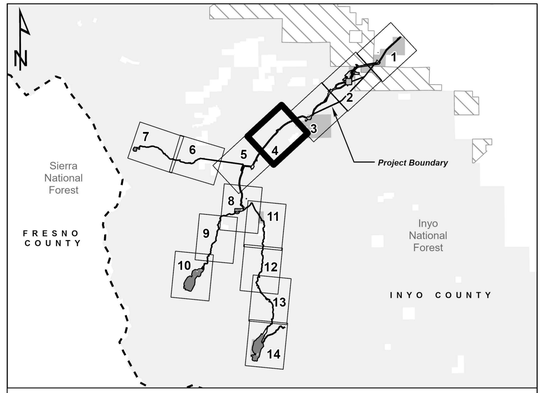
T08S-R31E-3
T08S-R31E-2
T07S-R31E-34
T07S-R31E-35

PRIVATE
OWNERSHIP

INYO
NATIONAL
FOREST

Egypt Trail

Egypt Creek



12.38°W
1/18/2022

- Project Boundary (Draft)
- Project Features
- Project Road
- Project Trail
- Stream/Reservoir Gage
- Penstock
- Diversion
- Transmission Line

Project Recreation
- Boating Access
- Fishing Access

- SCE-Owned Land
- Private Ownership
- BLM Land
- USFS Land
- John Muir Wilderness Boundary
- Reference Point
- USFS Trail
- Road
- Highway
- Hydrography
- Waterbody
- County
- Match Line

Map notes:
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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT
FERC NO. 1394

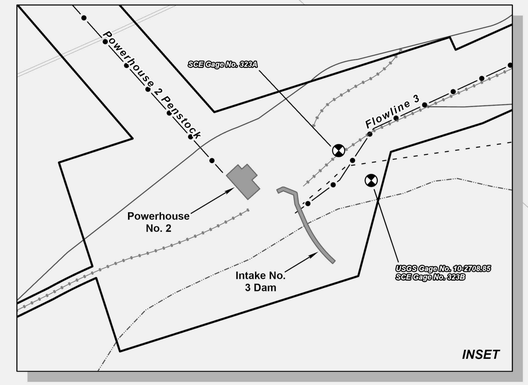
PROJECT BOUNDARY MAP

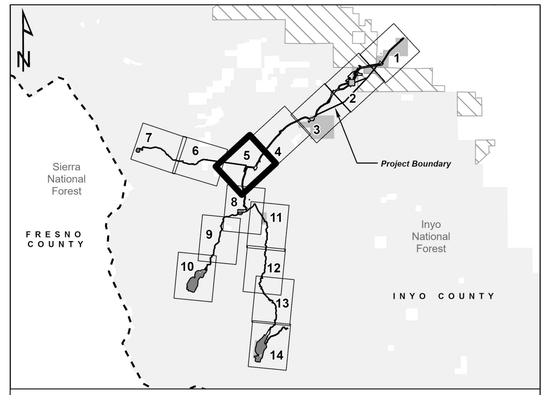
EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 4 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**





PRIVATE OWNERSHIP

MATCH LINE SHEET 6

MATCH LINE SHEET 4

Project Boundary (50' Buffer of Penstock C/L)

Project Boundary (100' Buffer of Penstock C/L)

8.98 Ac.

0.08 Ac.

48.37 Ac.

12.59 Ac.

Birch Creek Diversion Flowline

Flowline 2

Flowline 3

Powerhouse 2 Penstock

N2030

N2036

N2063

08s103

08s104

08s105

BISHOP BOWL

BUTTERMILK RD

BIG TREES RD

CONTROL-PLANT 2

Bishop Creek

Middle Fork Bishop Creek

South Fork Bishop Creek

USFS 08S103 (Along Flowline 2)

USFS 07S15B (Along Flowline 3)

PRIVATE OWNERSHIP

Reference Point 5-1
N: 2344873.927908
E: 6681072.205995

Reference Point 5-2
N: 2349076.821067
E: 6683858.24177

Reference Point 5-3
N: 2343303.057027
E: 6684182.880382

168

SEE INSET

T08S-R31E-8
T08S-R31E-16
T08S-R31E-9
T08S-R31E-4
T08S-R31E-9
T08S-R31E-10
T08S-R31E-3

INYO NATIONAL FOREST

12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
Penstock
Diversion
Transmission Line

Project Recreation
Boating Access
Fishing Access
SCE-Owned Land
Private Ownership
BLM Land
USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
Highway
Hydrography
Waterbody
County
Match Line

Map notes:

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STATE OF MAINE — STEPHEN W. EVERETT 2161 — PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 5 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

MATCH LINE SHEET 7

T07S-R30E-36 | T07S-R31E-31 | T08S-R31E-6 | T08S-R30E-1

BUTTERMILK RD

McGee Creek

Birch Creek

N2026

Reference Point 6-1
N: 2350722.692721
E: 6674967.520814

Reference Point 6-2
N: 2348767.478713
E: 6678620.119059

McGee Creek Diversion Flowline

USGS Gage No. 10-2822.12
SCE Gage No. 620

Birch-McGee Diversion

08s102

T08S-R31E-6 | T08S-R31E-5 | T08S-R31E-8

MATCH LINE SHEET 5

PRIVATE OWNERSHIP

Project Boundary
(50' Buffer of McGee Creek C/L)

Project Boundary
(50' Buffer of Penstock C/L)

USGS Gage No. 10-2822.27
SCE Gage No. 624

USFS 08S102D
(Access to 08s99)

7.44 Ac.

0.42 Ac.

08s100

15.33 Ac.

T08S-R30E-12 | T08S-R31E-7

USGS Gage No. 10-2822.28
SCE Gage No. 500

McGee Creek Diversion

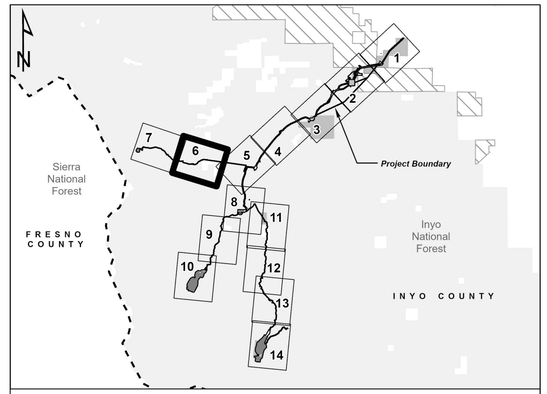
McGee Creek Diversion Flowline

Longley Reservoir Trail

N1934

Reference Point 6-3
N: 2346618.537862
E: 6668874.725195

INYO NATIONAL FOREST



12.38°W
1/18/2022

- Project Boundary (Draft)
- Project Features
- Project Road
- Project Trail
- Stream/Reservoir Gage
- Penstock
- Diversion
- Transmission Line

Project Recreation
- Boating Access
- Fishing Access

- SCE-Owned Land
- Private Ownership
- BLM Land
- USFS Land
- John Muir Wilderness Boundary
- Reference Point
- USFS Trail
- Road
- Highway
- Hydrography
- Waterbody
- County
- Match Line

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STATE OF MAINE — STEPHEN W. EVERETT 2161 — PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 6 OF 14

0 300 600 1,200 1,800 2,400 Feet

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

Reference Point 7-1
N: 2354935.943767
E: 6663008.535521

INYO NATIONAL FOREST

MATCH LINE SHEET 6

T07S-R30E-36
T07S-R30E-35
T08S-R30E-1
T08S-R30E-2

T07S-R30E-35
T07S-R30E-34
T08S-R30E-2
T08S-R30E-3

16.52 Ac.

McGee Creek

USGS Gage No. 10-2923.27
SCE Gage No. 421

15.33 Ac.

Longley Reservoir Trail

McGee Creek Diversion

Longley Dam

12.03 Ac.

Longley Lake

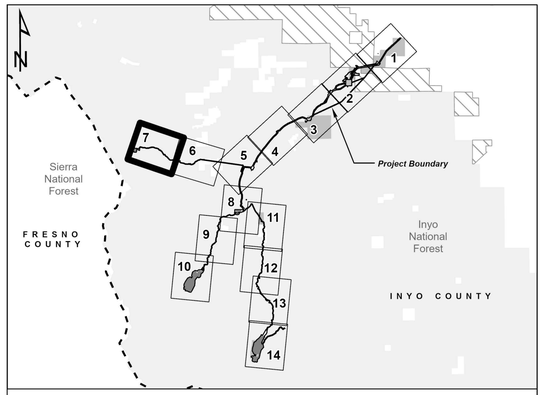
Project Boundary
(50' Buffer of McGee Creek)

Project Boundary
(High Water Mark)

Reference Point 7-3
N: 2348414.013961
E: 6667063.999406

Reference Point 7-2
N: 2348977.672106
E: 6660982.495079

T08S-R30E-2
T08S-R30E-11
T08S-R30E-1
T08S-R30E-12



12.38°W
1/18/2022

Project Boundary (Draft)
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Project Trail
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USFS Land
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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

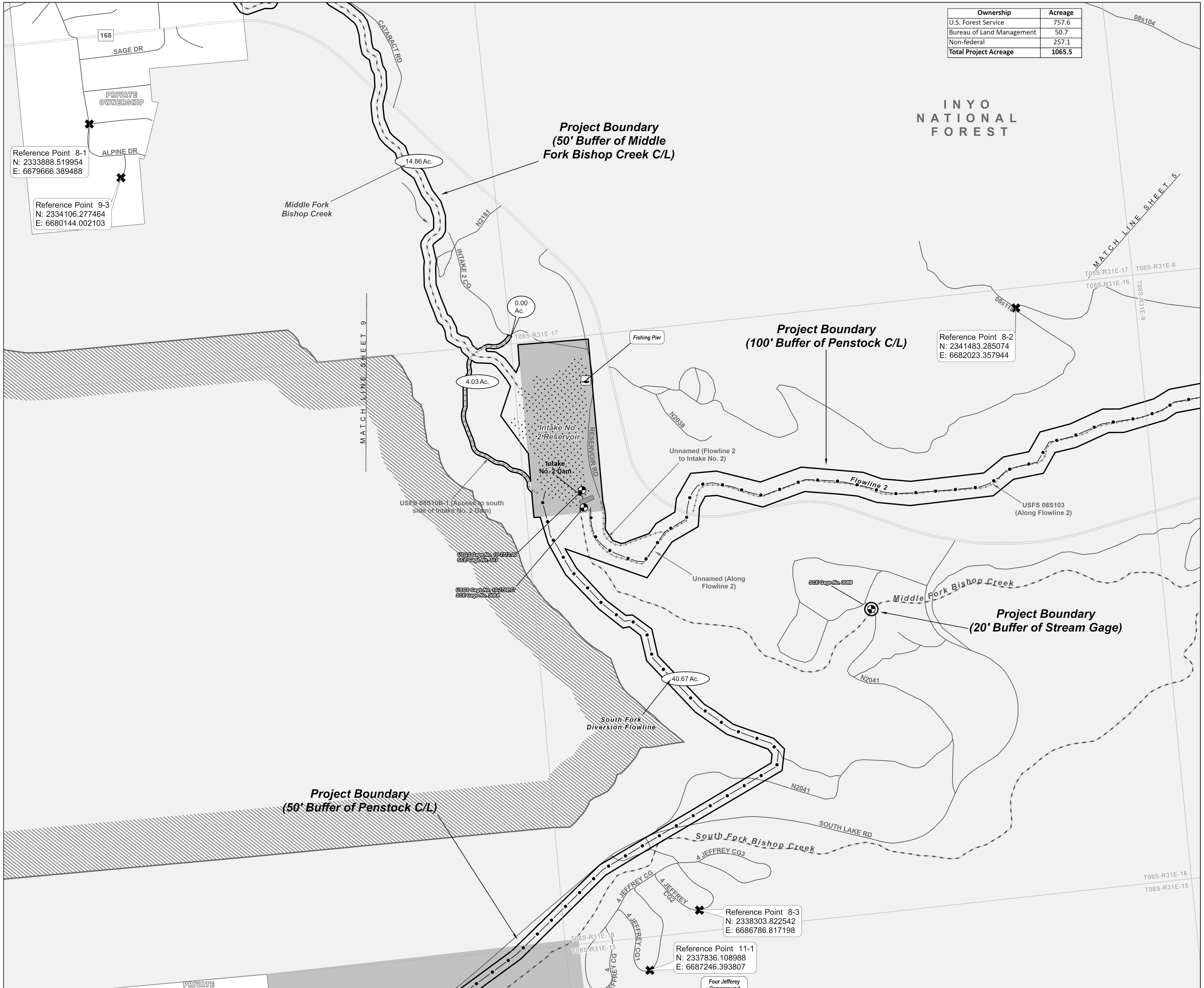
PROJECT BOUNDARY MAP

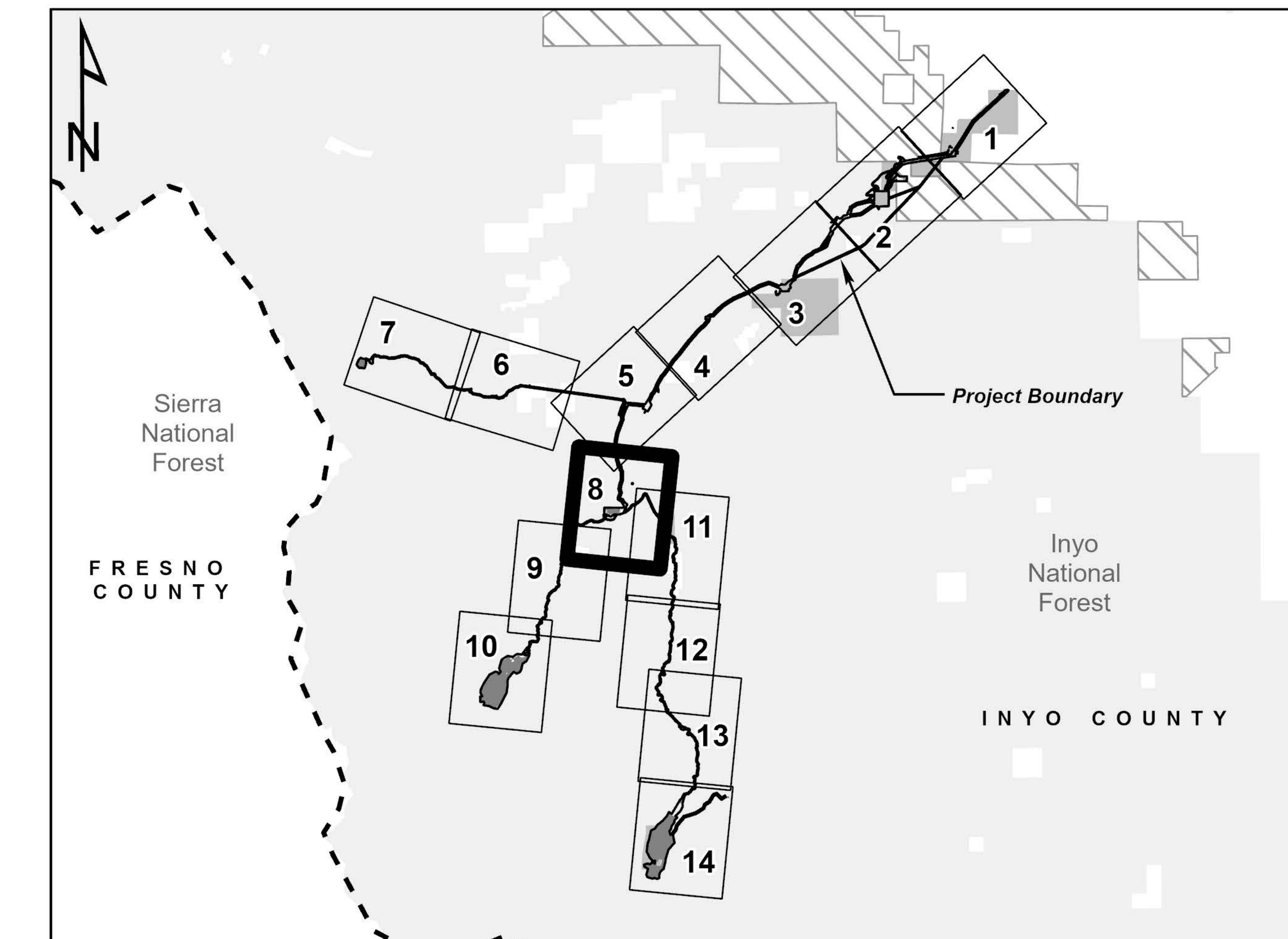
EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 7 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**





12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
Penstock
Diversion
Transmission Line

Project Recreation
Boating Access
Fishing Access
SCE-Owned Land
Private Ownership
BLM Land
USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
Highway
Hydrography
Waterbody
County
Match Line

<u>Map notes</u>:
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STATE OF MAINE STEPHEN W. EVERETT 2161 PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT
FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G SCALE: 1" = 400' SHEET NO. 8 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

MATCH LINE SHEET 10

Reference Point 10-2
N: 2327305.703923
E: 6675358.078963

Reference Point 9-1
N: 2331332.264761
E: 6674600.978392

Reference Point 9-2
N: 2336125.632212
E: 6675813.238157

OLD TRACT RD

NORTH LAKE RD

INYO NATIONAL FOREST

Middle Fork Bishop Creek

MIDDLE FORK RD

7.24 Ac.

168

T08S-R31E-19

T08S-R31E-20

T08S-R31E-30

T08S-R31E-29

T08S-R31E-28

Project Boundary (50' Buffer of Middle Fork Bishop Creek C/L)

7.80 Ac.

CARDINAL RD

PRIVATE OWNERSHIP

CATARACT RD

N2184

COLUMBINE DR

N2186

PRIVATE OWNERSHIP

SAGE DR

N2187

ALPINE DR

Reference Point 8-1
N: 2333888.519954
E: 6679666.389488

Reference Point 9-3
N: 2334106.277464
E: 6680144.002103

N2187

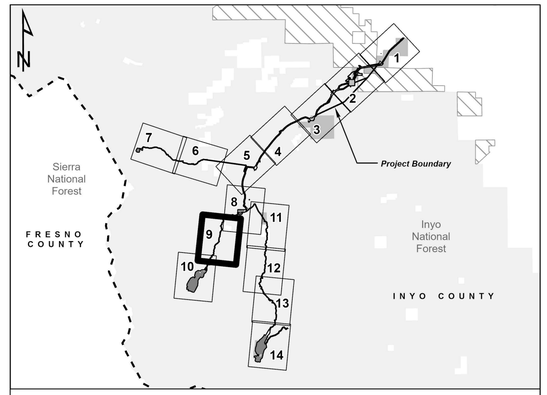
MATCH LINE SHEET 8

T08S-R31E-20

T08S-R31E-21

T08S-R31E-29

T08S-R31E-28



12.38°W
1/18/2022

- Project Boundary (Draft)
- Project Features
- Project Road
- Project Trail
- Stream/Reservoir Gage
- Penstock
- Diversion
- Transmission Line

Project Recreation
- Boating Access
- Fishing Access

- SCE-Owned Land
- Private Ownership
- BLM Land
- USFS Land
- John Muir Wilderness Boundary
- Reference Point
- USFS Trail
- Road
- Highway
- Hydrography
- Waterbody
- County
- Match Line

Map notes:
1. The Bishop Creek Project is located in the State of California in Inyo County.
2. Reference Point coordinates are shown in NAD 1983 StatePlane California IV FIPS 0404 Ft US.
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7. The Project boundary surrounding project roads follows at a 15' buffer.

SURVEYORS STATEMENT

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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 9 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

INYO NATIONAL FOREST

Middle Fork Bishop Creek

Grass Lake Spur Trail

Lamarck Lakes Trail

Grass Lake Outlet Trail

Lamarck Creek

Project Boundary (High Water Mark)

21.17 Ac.

2.60 Ac.

0.19 Ac.

170.53 Ac.

Lake Sabrina

Reference Point 10-1
N: 2326891.324298
E: 6670546.69903

T08S-R30E-36
T08S-R31E-31
T08S-R30E-25
T08S-R31E-30

Reference Point 10-3
N: 2320220.456421
E: 6673388.621632

Tyee Lakes Trail

Boat Launch

Intake No. 2 Dam

USGS Gage No. 10-2700670
SCE Gage No. 609

MATCH LINE SHEET 9

Reference Point 10-2
N: 2327305.703923
E: 6675358.078963

Sabrina Basin Trail

OLD TRACT RD

SABRINA RD

USGS Gage No. 10-2700675
SCE Gage No. 607

7.24 Ac.

MIDDLE FORK RD

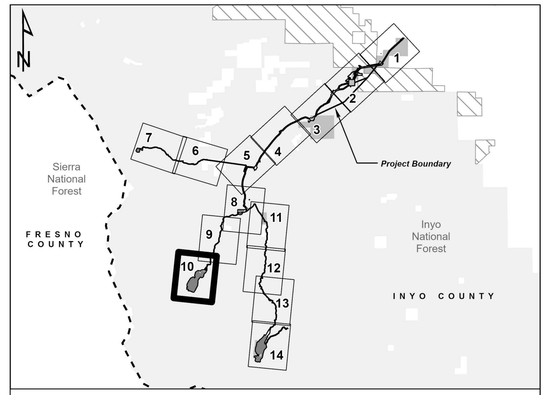
168

T08S-R31E-31
T08S-R31E-32

Middle Fork Bishop Creek

Project Boundary (50' Buffer of Middle Fork Bishop Creek C/L)

T08S-R31E-31
T08S-R31E-32



12.38°W
1/18/2022

- Project Boundary (Draft)
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- Project Road
- Project Trail
- Stream/Reservoir Gage
- Penstock
- Diversion
- Transmission Line

Project Recreation
- Boating Access
- Fishing Access

- SCE-Owned Land
- Private Ownership
- BLM Land
- USFS Land
- John Muir Wilderness Boundary
- Reference Point
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- Road
- Highway
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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

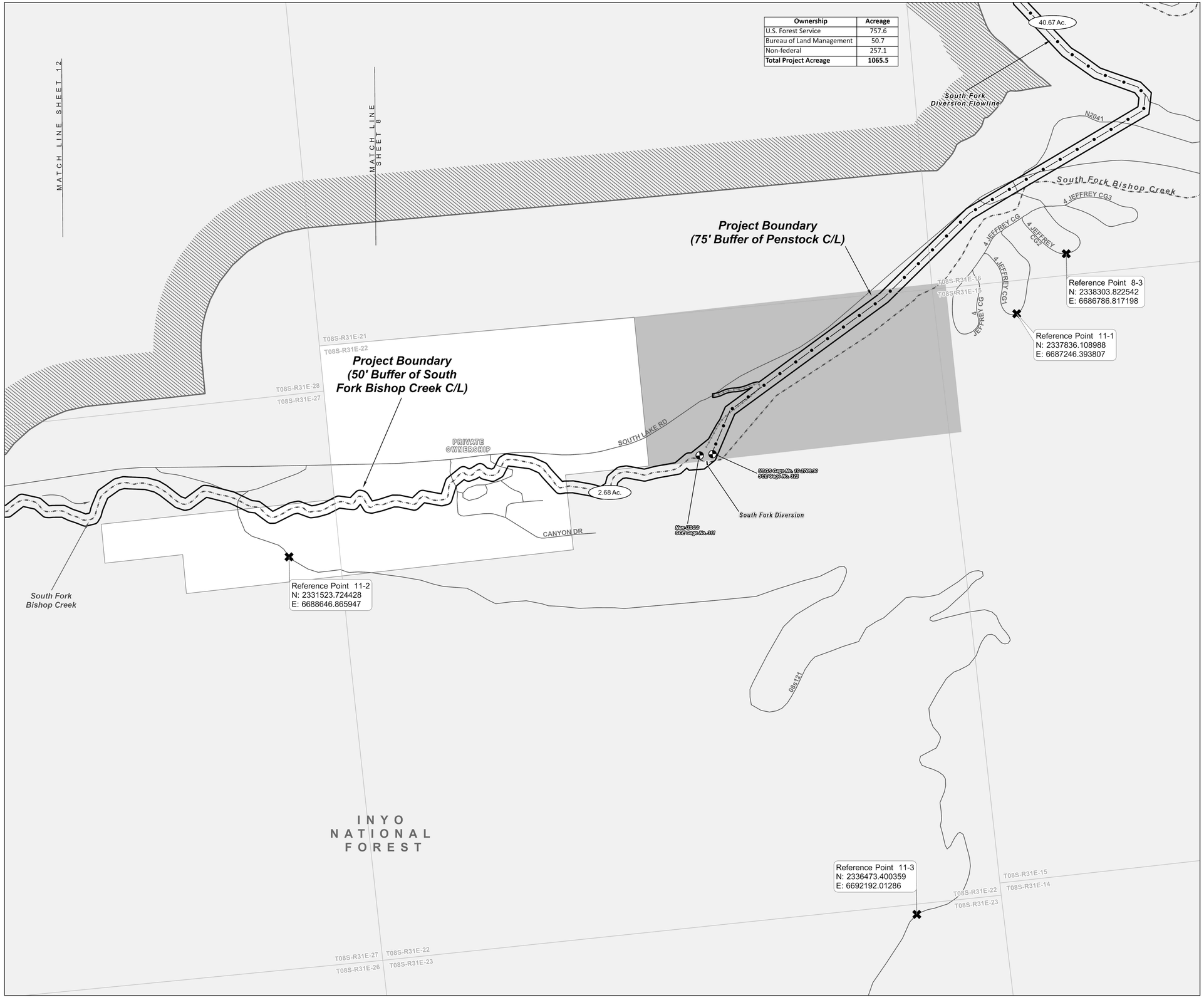
BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

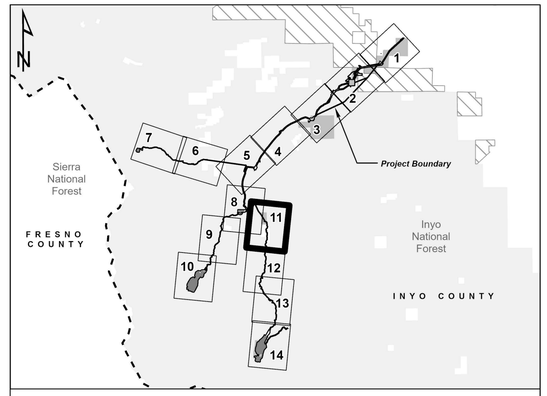
PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 10 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0





12.38°W
1/18/2022

- Project Boundary (Draft)
- Project Features
- Project Road
- Project Trail
- Stream/Reservoir Gage
- Penstock
- Diversion
- Transmission Line

Project Recreation
- Boating Access
- Fishing Access

- SCE-Owned Land
- Private Ownership
- BLM Land
- USFS Land
- John Muir Wilderness Boundary
- Reference Point
- USFS Trail
- Road
- Highway
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- County
- Match Line

Map notes:
1. The Bishop Creek Project is located in the State of California in Inyo County.
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STATE OF MAINE — STEPHEN W. EVERETT 2161 — PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 11 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

MATCH LINE SHEET 11

T08S-R31E-33

T08S-R31E-34

T08S-R31E-26

T08S-R31E-27

0.12 Ac.

4.22 Ac.

12.95 Ac.

12.32 Ac.

Reference Point 12-1
N: 2321509.563352
E: 6687021.680585

Reference Point 13-2
N: 2322059.23334
E: 6686984.48349

Reference Point 12-2
N: 2328615.061327
E: 6687602.305115

SOUTH LAKE RD

South Fork Bishop Creek

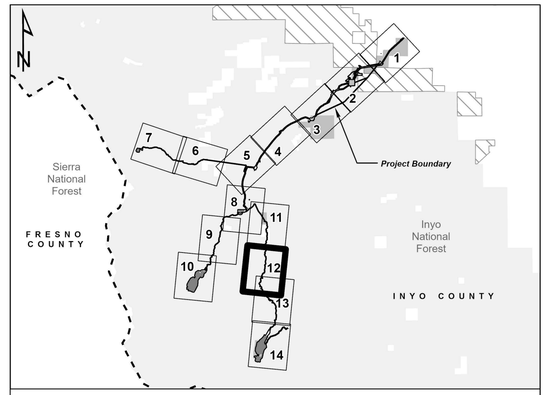
Project Boundary (50' Buffer of South Fork Bishop Creek C/L)

MATCH LINE SHEET 13

Reference Point 12-3
N: 2324850.544054
E: 6690704.274748

INYO NATIONAL FOREST

T08S-R31E-27



12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
Penstock
Diversion
Transmission Line

Project Recreation
Boating Access
Fishing Access
SCE-Owned Land
Private Ownership
BLM Land
USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
Highway
Hydrography
Waterbody
County
Match Line

Map notes:

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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 12 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

Reference Point 13-1
N: 2315766.381539
E: 6685828.422255

MATCH LINE SHEET 14

Tyee Lakes Trail

T09S-R31E-10

T09S-R31E-3

T09S-R31E-2

T09S-R31E-11

South Fork Bishop Creek

0.12 Ac.

4.22 Ac.

T09S-R31E-9

Reference Point 12-1
N: 2321509.563352
E: 6687021.680585

Reference Point 13-2
N: 2322059.23334
E: 6686984.48349

SOUTH LAKE RD

17.65 Ac.

INYO NATIONAL FOREST

MATCH LINE SHEET 12

PARCHERS RD

Rainbow Pack Station Trail

Project Boundary (50' Buffer of South Fork Bishop Creek C/L)

T08S-R31E-34

T08S-R31E-35

T09S-R31E-2

T09S-R31E-1

T09S-R31E-11

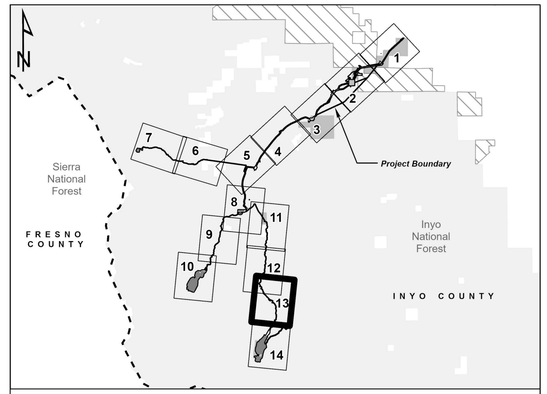
T09S-R31E-12

T09S-R31E-1

T09S-R31E

Lidner Trail Trail

Reference Point 13-3
N: 2320067.570809
E: 6693048.682059



12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
Penstock
Diversion
Transmission Line

Project Recreation
Boating Access
Fishing Access
SCE-Owned Land
Private Ownership
BLM Land
USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
Highway
Hydrography
Waterbody
County
Match Line

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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 13 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

Ownership	Acreage
U.S. Forest Service	757.6
Bureau of Land Management	50.7
Non-federal	257.1
Total Project Acreage	**1065.5**

Reference Point 14-1
N: 2304036.688653
E: 6685336.328507

Treasure Lakes Trail

South Fork Bishop Creek

17.57 Ac.

0.15 Ac.

1.25 Ac.

Project Boundary (High Water Mark)

0.12 Ac.

South Lake

91.34 Ac.

Boat Launch

Hillside Dam

MATCH LINE SHEET 13

T09S-R31E-15

T09S-R31E-10

T09S-R31E-22

T09S-R31E-27

Project Boundary (50' Buffer of South Fork Bishop Creek C/L)

SOUTH LAKE RD

Bishop Pass Trail

Treasure Lakes Trail

Project Boundary (50' Buffer of Natural Water Way C/L)

4.57 Ac.

Weir Lake Weir

Weir Lake

USGS Gage No. 10-2707.00
SCE Gage No. 617

USGS Gage No. 10-2708.00
SCE Gage No. 619

USGS Gage No. 10-2708.00
SCE Gage No. 325

SOUTH LAKE RD

12.55 Ac.

24.38 Ac.

Rainbow Pack Station Trail

South Fork Bishop Creek

Project Boundary (75' Buffer of Penstock C/L)

Reference Point 14-2
N: 2312808.296
E: 6690626.895335

INYO NATIONAL FOREST

Green Creek Diversion Flowline

Green Creek Diversion

Mary Louise Lake Trail

Reference Point 14-3
N: 2303880.329285
E: 6691528.139076

T09S-R31E-14

T09S-R31E-23

T09S-R31E-14

T09S-R31E-11

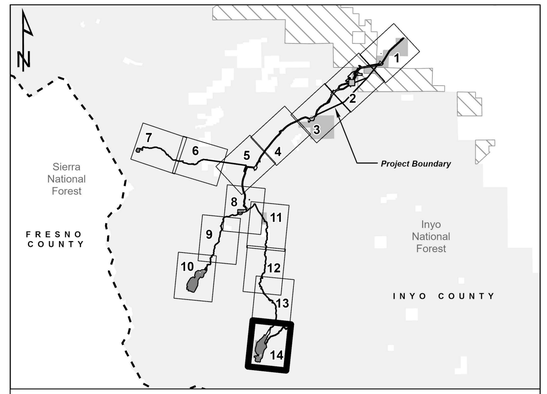
T09S-R31E-12

T09S-R31E-13

Baker Summit Trail

0.53 Ac.

Bluff Lake



12.38°W
1/18/2022

Project Boundary (Draft)
Project Features
Project Road
Project Trail
Stream/Reservoir Gage
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Boating Access
Fishing Access
SCE-Owned Land
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USFS Land
John Muir Wilderness Boundary

Reference Point
USFS Trail
Road
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Hydrography
Waterbody
County
Match Line

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STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SOUTHERN CALIFORNIA EDISON

BISHOP CREEK HYDROELECTRIC PROJECT FERC NO. 1394

PROJECT BOUNDARY MAP

EXHIBIT G | SCALE: 1" = 400' | SHEET NO. 14 OF 14

0 300 600 1,200 1,800 2,400 Feet

FERC DWG. NO. 1394- 0000000-0

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project (FERC Project No. 1394)

FINAL LICENSE APPLICATION
APPENDIX B

BLM FORM(S) 587

June 2022

Support from:

Kleinschmidt

Form FERC-587
OMB No. 1902-0145
(Expires 12/31/2024)

LAND DESCRIPTION

Public Land States
(Rectangular Survey System Lands)

1. STATE California 2. FERC PROJECT NO. 1394

3. TOWNSHIP T07S RANGE R31E MERIDIAN MDM

4. Check one:

X License
_____Preliminary Permit

Check one:

_____Pending
_____Issued

If preliminary permit is issued, give expiration date:_____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	**5**	**4**	**3**	**2**	**1**
7	**8**	**9**	**10**	**11**	**12**
18	**17**	**16**	**15**	**14**	**13**
19	**20**	**21**	**22**	**23**	**24** 2,3
30	**29**	**28**	**27**	**26**	**25** 2,3
31	**32**	**33**	**34** 4	**35** 3,4	**36**

6. contact's name Matthew Woodhall

telephone no. (626-302-9596)

Date submitted June 28, 2022

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

Form FERC-587
OMB No. 1902-0145
(Expires 12/31/2024)

LAND DESCRIPTION

Public Land States
(Rectangular Survey System Lands)

1. STATE California 2. FERC PROJECT NO. 1394

3. TOWNSHIP T07S RANGE R32E MERIDIAN MDM

4. Check one:

X License
_____Preliminary Permit

Check one:

_____Pending
_____Issued

If preliminary permit is issued, give expiration date:_____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	**5**	**4**	**3**	**2**	**1**
7	**8**	**9**	**10**	**11**	**12**
18	**17** 1,2	**16**	**15**	**14**	**13**
19 2	**20** 1,2	**21**	**22**	**23**	**24**
30 2,3	**29**	**28**	**27**	**26**	**25**
31	**32**	**33**	**34**	**35**	**36**

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telephone no. (626-302-9596)

Date submitted June 28, 2022

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Form FERC-587
OMB No. 1902-0145
(Expires 12/31/2024)

LAND DESCRIPTION

Public Land States
(Rectangular Survey System Lands)

1. STATE California 2. FERC PROJECT NO. 1394

3. TOWNSHIP T08S RANGE R30E MERIDIAN MDM

4. Check one:

X License
_____Preliminary Permit

Check one:

_____Pending
_____Issued

If preliminary permit is issued, give expiration date:_____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	**5**	**4**	**3** 7	**2** 7	**1** 6,7
7	**8**	**9**	**10**	**11**	**12**
18	**17**	**16**	**15**	**14**	**13**
19	**20**	**21**	**22**	**23**	**24**
30	**29**	**28**	**27**	**26**	**25**
31	**32**	**33**	**34**	**35**	**36** 10

6. contact's name Matthew Woodhall

telephone no. (626-302-9596)

Date submitted June 28, 2022

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

Form FERC-587
OMB No. 1902-0145
(Expires 12/31/2024)

LAND DESCRIPTION

Public Land States
(Rectangular Survey System Lands)

1. STATE California 2. FERC PROJECT NO. 1394

3. TOWNSHIP T08S RANGE R31E MERIDIAN MDM

4. Check one:

X License
_____Preliminary Permit

Check one:

_____Pending
_____Issued

If preliminary permit is issued, give expiration date:_____

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6 6	**5** 5,6	**4** 5	**3** 4,5	**2**	**1**
7 6	**8** 5	**9** 5,8	**10**	**11**	**12**
18	**17**	**16** 5,8,11	**15**	**14**	**13**
19	**20** 8,9	**21** 8,11	**22** 11	**23**	**24**
30 9,10	**29** 9	**28**	**27** 11,12	**26**	**25**
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Section 6 10	**5** 10	**4**	**3** 12,13	**2** 12,13	**1**
7	**8**	**9**	**10**	**11** 13,14	**12** 14
18	**17**	**16**	**15**	**14** 14	**13**
19	**20**	**21**	**22** 14	**23** 14	**24**
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6. contact's name Matthew Woodhall

telephone no. (626-302-9596)

Date submitted June 28, 2022

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

SOUTHERN CALIFORNIA EDISON
Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT H
FINAL LICENSE APPLICATION

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

EXHIBIT H

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

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ACRONYMS

C

CEII	Critical Infrastructure Information
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission

F

FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act

I

ISO	Independent System Operator
IOUs	Investor-Owned Utilities

K

kV	kilovolt

L

LADWP	Los Angeles Department of Water and Power

M

MW	megawatt
MWh	megawatt hours

N

NCP	Nevada-California Power Company

P

Project	Bishop Creek Hydroelectric Project

R

RAS	Remedial Action Scheme

S

SCE	Southern California Edison Company
SSP	Southern Sierras Power Company

Exhibit H
General Information

Section 5.18(c) of Title 18 of the Code of Federal Regulations (CFR) describes information that an applicant for a new license (License for a Major Project – Existing Dam) must include in Exhibit H of its license application.

The information required to be provided by this paragraph (c) must be included in the application as a separate exhibit labeled "Exhibit H":

(1) *Information to be provided by an applicant for new license. Filing requirements:*

(i) *Information to be supplied by all applicants.* All applicants for a new license under this part must file the following information with the Commission:

(A) A discussion of the plans and ability of the applicant to operate and maintain the project in a manner most likely to provide efficient and reliable electric service, including efforts and plans to:

(1) Increase capacity or generation of the project with any upstream or downstream water resource project

(2) Coordinate the operation of the project with any upstream or downstream water resource projects; and;

(3) Coordinate the operation of the project with the applicant's or other electrical systems to minimize the cost of production.

(B) A discussion of the need of the applicant over the short and long term for the electricity generated by the project, including:

(1) The reasonable costs and reasonable availability of alternative sources of power that would be needed by the applicant or is customers, including wholesale customers, if the applicant is not granted a license for the project.

(2) A discussion of the increase in fuel, capital, and any other costs that would be incurred by the applicant or its customers to purchase or generate power necessary to replace the output of the licensed project, if the applicant is not granted a license for the project.

(3) The effect of each alternative source of power on:

(i) The applicant's customers, including wholesale customers;

(ii) The applicant's operating and load characteristics; and

(iii) The communities served or to be served, including any reallocation of costs associated with the transfer of a license from the existing licensee.

(C) The following data showing need and the reasonable cost and availability of alternative sources of power:

(1) The average annual cost of the power produced by the project, including the basis for that calculation;

(2) The projected resources required by the applicant to meet the applicant's capacity and energy requirements over the short and long term including:

(i) Energy and capacity resources, including the contributions from the applicant's generation, purchases, and load modification measures (such as conservation, if considered as a resource), as separate components of the total resources required;

(ii) A resource analysis, including a statement of system reserve margins to be maintained for energy and capacity; and

(iii) If load management measures are not viewed as resources, the effects of such measures on the projected capacity and energy requirements indicated separately;

(iv) For alternative sources of power, including generation of additional power at existing facilities, restarting deactivated units, the purchase of power off-system, the construction or purchase and operation of a new power plant, and load management measures such as conservation: The total annual cost of each alternative source of power to replace project power; the basis for the determination of projected annual cost; and ad discussion of the relative merits of each alternative, including the issues of the period of availability and the dependability of purchased power, average life of alternatives, relative equivalent availably of generating alternatives, and relative impacts on the applicant's power system reliability and other system operating characteristics; and the effect on the direct providers (and their immediate customers) of alternative sources of power.

(D) If an applicant uses power for its own industrial facility and related operations, the effect of obtaining or losing electricity from the project on the operation and efficiency

(E) If an applicant is an Indian tribe applying for a license for a project located on the tribal reservation, a statement of the need of such Indian tribe for electricity generated by the project to foster the purposes of the reservation

(F) A comparison of the impact on the operations and planning of the applicant's transmission system of receiving or not receiving the project license, including:

(1) An analysis of the effects of any resulting redistribution of power flows on line loading (with respect to applicable thermal, voltage, or stability limits), line losses, and necessary new construction of transmission facilities or upgrading of existing facilities, together with the cost impact of those effects;

(2) An analysis of the advantages that the applicant's transmission system would provide in the distribution of the project's power

(3) Detailed single-line diagrams, including existing system facilities identified by name and circuit number, that show system transmission elements in relation to the project and other principal interconnected system elements. Power flow and loss data that represent system operating conditions may be appended if applicants believe such data would be useful to show that the operating impacts described would be beneficial.

(G) If the applicant has plans to modify existing project facilities or operations, a statement of the need for, or usefulness of the modifications, including at least a reconnaissance-level study of the effect and projected costs of the proposed plans and any alternate plans, which in conjunction with other developments in the area would conform with a comprehensive plan for improving or developing the waterway and for other beneficial public uses as defined in Section 10(a)(1) of the Federal Power Act.

(H) If the applicant has no plans to modify existing project facilities or operations, at least a reconnaissance-level study to show that the project facilities or operations in conjunction with other developments in the area would conform with a comprehensive plan for

improving or developing the waterway and for other beneficial public uses as defined in Section 10(a)(1) of the Federal Power Act.

(I) A statement describing the applicant's financial and personnel resources to meet its obligations under a new license, including specific information to demonstrate that the applicant's personnel are adequate in number and training to operate and maintain the project in accordance with the provisions of the license.

(J) If an applicant proposes to expand the project to encompass additional lands, a statement that the applicant has notified, by certified mail, property owners on the additional lands to be encompassed by the project and governmental agencies and subdivisions likely to be interested in or affected by the proposed expansion.

(K) The applicant's electricity consumption efficiency improvement program, as defined under Section 10(a)(2)(c) of the Federal Power Act, including:

(1) A statement of the applicant's record of encouraging or assisting its customers to conserve e electricity and a description of its plans and capabilities for promoting electricity conservation by its customers; and

(2) A statement describing the compliance of the applicant's energy conservation programs with any applicable regulatory requirements.

(L) The names and mailing addresses of every Indian tribe with land on which any part of the proposed project would be located or which the applicant reasonably believes would otherwise be affected by the proposed project.

(ii) *Information to be provided by an applicant licensee*: An existing licensee that applies for a new license must provide:

(A) The information specified in paragraph (c)(1) of this section.

(B) A statement of measures taken or planned by the licensee to ensure safe management, operation, and maintenance of the project, including:

(1) A description of existing and planned operation of the project during flood conditions;

(2) A discussion of any warning devices used to ensure downstream public safety;

(3) A discussion of any proposed changes to the operation of the project or downstream development that might affect the existing Emergency Action Plan, as described in subpart C of part 12 of this chapter, on file with the Commission;

(4) A description of existing and planned monitoring devices to detect structural movement or stress, seepage, uplift, equipment failure, or water conduit failure, including a description of the maintenance and monitoring programs used or planned in conjunction with the devices; and

(5) A discussion of the project's employee safety and public safety record, including the number of lost-time accidents involving employees and the record of injury or death to the public within the project boundary.

(C) A description of the current operation of the project, including any constraints that might affect the manner in which the project is operated

(D) A discussion of the history of the project and record of programs to upgrade the operation and maintenance of the project

(E) A summary of any generation lost at the project over the last five years because of unscheduled outages, including the cause, duration, and corrective action taken.

(F) A discussion of the licensee's record of compliance with the terms and conditions of the existing license, including a list of all incidents of noncompliance, their disposition, and any documentation relating to each incident.

(G) A discussion of any actions taken by the existing licensee related to the project which affect the public.

(H) A summary of the ownership and operating expenses that would be reduced if the project license were transferred from the existing license.

(I) A statement of annual fees paid under part I of the Federal Power Act for the use of any Federal or Indian lands included within the project boundary

(iii) *Information to be provided by an applicant who is not an existing licensee*. An applicant that is not an existing licensee must provide:

(A) The information specified in paragraph (c)(1) of this section

(B) A statement of the applicant's plans to manage, operate, and maintain the project safely, including:

(1) A description of the differences between the operation and maintenance procedures planned by the applicant and the operation and maintenance procedures of the existing license;

(2) A discussion of any measures proposed by the applicant to implement the existing licensee's Emergency Action Plan, as described in subpart C of part 12 of this chapter, and any proposed changes;

(3) A description of the applicant's plans to continue safety monitoring of existing project instrumentation and any proposed changes; and

(4) A statement indicating whether or not the applicant is requesting the licensee to provide transmission services under section 15(d) of the Federal Power Act.

1.0 INFORMATION TO BE PROVIDED BY APPLICANT FOR NEW LICENSE 18 CFR 5.18(C)(1)(I)

1.1. EFFICIENCY AND RELIABILITY 18 CFR 5.18(C)(1)(I)(A)

As required by § 5.18(c) of Title 18 of the Federal Power Act (FPA), this section provides a discussion of the plans and ability of the applicant to operate and maintain the project in a manner most likely to provide efficient and reliable electrical service including efforts and plans to increase capacity or generation at the project; coordinate the operation of the project with any upstream or downstream water resources projects; and coordinate the operation of the project with other electrical systems.

Southern California Edison Company (SCE) has extensive experience operating and maintaining its vast hydroelectric systems in an efficient and reliable manner. SCE has the responsibility for generating, purchasing, transmitting, and distributing electricity to its customers. The Bishop Creek Hydroelectric Project (Bishop Creek Project) is operated in conjunction with SCE's other generating resources to meet the electricity demand of its customers throughout the state.

1.1.1. INCREASE CAPACITY OR GENERATION AT THE PROJECT 18 CFR 5.18(C)(1)(I)(A)(1)

SCE is not proposing any changes to the capacity or generation of the Bishop Creek Project.

1.1.2. COORDINATE THE OPERATION OF THE PROJECT WITH ANY UPSTREAM OR DOWNSTREAM WATER RESOURCES PROJECTS 18 CFR 5.18(C)(1)(I)(A)(2)

The Bishop Creek Project is the uppermost water resource project for McGee Creek and Bishop Creek Drainages; there are no other upstream projects. Lake Sabrina and South Lake are the principal storage reservoirs that supply water to the Bishop Creek Project and downstream users. Plant operation is dictated by water availability. The water scheduling priority is based on the requirements of a 1922 water rights ruling (Hillside Water Company v. William A. Trickey, et al., herein referred to as the "Chandler Decree") and with wintertime flows regulated by the 1933 Sales Agreement (Sales Agreement) between southern Sierra Power Company (predecessor to SCE) and Los Angeles Department of Water and Power (LADWP). Both the Chandler Decree and the Sales Agreement form the standard of operations for which all regulations must be prioritized.

From below the confluence of Bishop Creek and the Owens River to Owens Lake, there is only one other dam on the mainstem Owens River, Tinemaha Dam, owned by LADWP. SCE does not coordinate the operation of the Bishop Creek Project with Tinemaha Dam, or any other projects in the Owens River watershed. Discussion of other currently licensed, or exempted, projects near the Bishop Project are discussed in Section 9.2 of Exhibit E of this application.

1.1.2.1. Coordinate the Operation of the Project with the Other Electrical Systems 18 CFR 5.18(c)(1)(i)(A)(3)

The entire set of SCE generation facilities is coordinated through the SCE Energy Control Center to maximize generation while minimizing economic and environmental costs. SCE bids power from its retained generation facilities into markets governed by the Independent System Operator (ISO). Thus, electrical generation from the Bishop Creek Project is coordinated with other generation throughout California.

1.2. SHORT-AND LONG-TERM NEED FOR PROJECT POWER 18 CFR 5.18(C)(1)(I)(B)

1.2.1. COSTS AND AVAILABILITY OF ALTERNATIVE SOURCES OF POWER IF LICENSE DENIED 18 CFR 5.18(C)(1)(I)(B)(1)

SCE's generation resources, including the Bishop Creek Project, are operated in the California ISO market. As such, all energy delivered by the Bishop Creek Project is sold into this central market and SCE separately purchases energy from this market to meet customer demand. This market is liquid and alternative sources of supply are available. These purchases would be at current wholesale market prices.

1.2.2. COST INCREASES FOR ALTERNATIVE POWER IF LICENSE DENIED 18 CFR 5.18(C)(1)(I)(B)(2)

If the Bishop Creek Project was to cease operations, SCE anticipates reduced energy and renewable energy credit sales resulting in a small increase in overall power procurement costs, offset by reduced operations and maintenance costs at the Bishop Creek Project. SCE would not expect to make any material changes to the overall portfolio. The impact would depend on current wholesale market prices.

1.2.3. EFFECTS OF ALTERNATIVE SOURCES OF POWER 18 CFR 5.18(C)(1)(I)(B)(3)

1.2.3.1. Customers, Including Wholesale Customers 18 CFR 5.18(c)(1)(i)(B)(3)(i)

Alternative sources of power would have a negligible impact on customers.

1.2.3.2. Operating and Load Characteristics 18 CFR 5.18(c)(1)(i)(B)(3)(ii)

Alternative sources of power would have a negligible impact on operating and load characteristics.

1.2.3.3. Communities Served or to be Served 18 CFR 5.18(c)(1)(i)(B)(3)(iii)

Alternative sources of power would have no impact on communities served or to be served.

1.3. NEED AND AVAILABILITY OF ALTERNATE POWER SOURCE 18 CFR 5.18(C)(1)(I)(C)

1.3.1. ANNUAL COST OF PROJECT POWER 18 CFR 5.18(C)(1)(I)(C)(1)

Annual net generation for the Bishop Creek Project since issuance of the current license (1994-2021) is 114,325 megawatt hours (MWh). During that same period, annual generation ranged from 59,974 MWh to 196,044 MWh. The Bishop Creek Project's most recent 5-year average annual average generation is 128,039 MWh. The installed capacity of the Bishop Creek Project is 29.21 MW while the dependable capacity is 28.92 MW.

Bishop Creek Project's Net Investment as of 2021 was $26,597,494 and the direct (O&M) expenses for this Project are $3,990,175 (based on 5-year average, 2016–2021). Additional Bishop Creek Project operating expenses and capital costs are discussed in Exhibit D.

1.3.2. RESOURCES REQUIRED TO MEET CAPACITY AND ENERGY NEEDS 18 CFR 5.18(C)(1)(I)(C)(2)

1.3.2.1. Energy and Capacity Resources as Separate Components of Total Resources Required 18 CFR 5.18(c)(1)(i)(C)(2)(i)

In 2020, the SCE system had a 27 gigawatt (GW) capacity procurement requirement and a 99 terawatt hour (TWh) energy procurement requirement. Of the 27 GW capacity procurement requirement, 4 GW was due to required planning reserve margin. The Bishop Creek Project provided 28.92 megawatt (MW) "net qualifying capacity" during the 2020 peak. The actual capacity and energy requirement were met by a variety of resources.

1.3.2.2. Resources Analysis and System Reserve Margins 18 CFR 5.18(c)(1)(i)(C)(2)(ii)

California maintains a 15 percent capacity planning reserve margin. SCE meets its capacity and energy requirements through a relatively small "Utility Owned" portfolio and the rest of the need is filled through various procurement processes including demand response and energy efficiency procurement. Of the power delivered to customers in 2020, 31 percent was from eligible renewables, 3 percent large hydro, 15 percent natural gas, 8 percent nuclear, and 42 percent from unspecified market transactions.

1.3.2.3. Effects of Efficiency and Load Management Measures 18 CFR 5.18(c)(1)(i)(C)(2)(iii)

SCE has a robust demand response, energy efficiency, and customer self-generation programs. Some of these programs are considered to be "load modifiers" and others are supply resources.

1.3.2.4. Cost and Merits of Project Alternatives 18 CFR 5.18(c)(1)(i)(C)(2)(iv)

Energy generated by the Bishop Creek Project displaces energy that would otherwise be generated by gas-fired units. Currently, aside from power generated by its own sources,

SCE purchases the power needed to serve its customers from qualifying facilities, independent power producers, the California Independent System Operator, the California Department of Water Resources (under contracts with other third parties), and other utilities. If the Bishop Creek Project was to cease operations, SCE anticipates reduced energy and renewable energy credit sales resulting in small increases in overall power procurement costs. These would be partially offset by reduced operations and maintenance costs at the Bishop Creek Project. SCE would not expect to make any material changes to the overall portfolio. The impact would depend on current wholesale market prices.

1.4. EFFECT OF LOSING POWER ON INDUSTRIAL FACILITIES 18 CFR 5.18(C)(1)(I)(D)

SCE does not use the power associated with the Bishop Creek Project for its own industrial facility or related operations, except for support buildings located at each power plant (station service).

1.5. STATEMENT ON TRIBES NEED FOR POWER 18 CFR 5.18(C)(1)(I)(E)

Applicant is not an Indian tribe nor is the Bishop Creek Project on a Tribal reservation.

1.6. IMPACT ON TRANSMISSION SYSTEM OF RECEIVING/NOT RECEIVING LICENSE 18 CFR 5.18(C)(1)(I)(F)

SCE assessed the generation losses if a new license to operate the Bishop Creek Project is not issued. The results indicated that, in general, impacts would be minimal. During off-peak and peak conditions there is enough generation and capacity on the lines to feed load in the area. No voltage or loading issues were identified. No new construction of transmission facilities or upgrading of existing facilities would be needed.

Some potential impacts were identified: Plant 2 supports the local load for the community of Bishop Creek and Aspendall using a 12 kilovolt (KV) distribution line during transmission line outages while Plant 4 supports the Early 2.4 KV distribution line which provides the load for Plant 4 Camp and a small private housing development above Plant 4. These communities would be subject to additional outages if a new license were not issued.

1.6.1. ANALYSIS OF EFFECTS OF RESTDISTRIBUTING FLOWS, LINE LOSSES, NEW LINES 18 CFR 5.18(C)(1)(I)(F)(1)

SCE conducted an analysis for redistributing flows and line losses because of it did not receive a new license to operate the Bishop Creek Project: impacts would be minimal; new construction of transmission facilities or upgrading of existing facilities would be needed.

1.6.2. Analysis of Advantages of Transmission System in Power Distribution 18 CFR 5.18(c)(1)(i)(F)(2)

SCE's transmission system is adequate to accommodate the Bishop Creek Project's power output; no transmission line upgrades are needed to continue to operate the Project if SCE is granted a new Federal Energy Regulatory Commission (FERC) license.

1.6.3. Detailed Single-Line Diagrams 18 CFR 5.18(c)(1)(i)(F)(3)

A single-line diagram of the Bishop Creek Project showing system transmission elements of the Project and other principal interconnected system elements is considered Critical Energy Infrastructure Information (CEII) under FERC's CEII regulations at 18 Code of Federal Regulation (CFR) §388.113. This document would be filed as a component of Exhibit F and SCE requests it be maintained in a non-public file and withheld from public disclosure in accordance with applicable regulations.

1.7. Statement of the Need for Modification 18 CFR 5.18(c)(1)(i)(G)

SCE has no plans at this time to modify existing Bishop Creek Project facilities or operations which would affect conformance with compliance plans.

1.8. Conformance with Comprehensive Plans 18 CFR 5.18(c)(1)(i)(H)

The Bishop Creek Project would conform with comprehensive plans for improving or developing the waterway and for other beneficial public uses as defined in Section 10(a)(1) of the FPA. Reviews of existing plans to ensure consistency are found in Exhibit E of this application.

Bishop Creek Project facilities and operations, including mitigation measures proposed in Exhibit E, are best adapted to a comprehensive plan for the Bishop River based on a balance amongst environmental protection, water supply, recreation, and the commerce and utilization of a low-cost, non-polluting source of energy. The Bishop Creek Project, as proposed in this application for New License, accounts for all existing and potential uses of the Bishop River, including recreation, economically viable hydroelectric generation, energy conservation in the context of the national interest in non-polluting and non-fossil fuel alternatives, public safety, and various aspects of environmental protection, including the prevention of significant detrimental impacts to fish and wildlife resources.

Identification and review of the potentially relevant comprehensive plans indicate that relicensing of the Bishop Creek Project would not conflict with the goals or objectives of any such plans. The Bishop Creek Project adopts measures to ensure public safety, protect the environment, enhance recreation opportunities, and operate for maximum efficiency and reliability, and thus provide the best possible overall mix of benefits.

1.9. FINANCIAL AND PERSONNEL RESOURCES 18 CFR 5.18(C)(1)(I)(I)

SCE's source and extent of financing and annual revenues are sufficient to meet the continuing operation and maintenance (O&M) needs of the Bishop Creek Project. For specific financial information, refer to FERC form No. 1, which is provided to FERC annually.

SCE has personnel resources necessary to meet license obligations for the Bishop Creek Project. A variety of training resources and approaches are used, including SCE's classroom training, workshops, textbooks, on-the-job training, and safety training for all personnel. Safety training is conducted through a combination of regularly scheduled monthly meetings, crew meetings, on-the-job-training, and special programs as needed. The training covers occupational safety, health, and fire prevention rules and hazardous materials handling, programs mandated by governmental agencies related to compliance with FERC license articles, and environmental and cultural protection grants.

Job knowledge and skill training programs are available for management, supervisor/administrative, clerical, and craft employees with apprenticeship training programs established for selected job classifications. Individual training needs are evaluated continually, and employees are subsequently scheduled into existing programs offered within SCE or into appropriate outside training programs.

Employees are encouraged to further their education through the educational assistance program, which provides financial assistance for eligible employees who participate in job related courses, correspondence programs, and degree and/or certificate programs sponsored by accredited institutions.

1.10. NOTIFICATION BY CERTIFICATION OF LAND OWNERS 18 CFR 5.18(C)(1)(I)(J)

SCE would make minor changes to the existing Bishop Creek Project boundary to address inaccuracies, accommodate lands necessary for protection, mitigation, and enhancement measures, and to better reflect how O&M is managed around Project facilities. When these proposed modifications are finalized, landowners with interests in the affected lands would be notified as required and provided an opportunity to comment.

1.11. ELECTRICITY CONSUMPTION IMPROVEMENT PLAN 18 CFR 5.18(C)(1)(I)(K)

1.11.1. ENERGY AND ELECTRICAL CONSERVATION 18 CFR 5.18(C)(1)(I)(K)(1)

SCE is actively engaged in energy efficiency, conservation, and environmentally beneficial programs. Successful program offerings include customer incentives, online tools, information and education, and cooperative effort with third-party contractors and other utilities. The California Public Utilities Commission (CPUC) ordered the California Investor-Owned Utilities (IOUs) to procure energy efficiency programs that are designed and implemented by third parties. As a result, each IOU entered contracts with certain vendors, who were selected through competitive solicitation processes. Additionally, customers now receive energy efficiency services, products, compensation, and/or installation directly or indirectly these third-parties. Example programs include Instant

Rebates, Comfortably California, Illuminate California, Statewide Midstream Water Heating Program, and Willdan Energy Efficiency Programs targeting commercial, industrial, and multi-family customers.

SCE's website describes a variety of products to help customers manage energy use via the web, mobile app, and /or sensors. A suite of online tools gives customers the ability to track energy costs and analyze usage. In addition, other information is disseminated to customers and energy classes and workshops are offered at Energy Education Centers in Irwindale and Tulare, California. Detailed information regarding energy efficiency and conservation programs is provided on SCE's website at www.sce.com.

1.11.2. COMPLIANCE OF ENERGY CONSERVATION PROGRAMS 18 CFR 5.18(C)(1)(I)(K)(2)

Regulatory compliance and reporting of SCE's energy efficiency programs is tracked through collection, reporting, and verification of information on the programs' performance. The results of the performance of the programs are filed annually with the CPUC.

1.12. INDIAN TRIBE NAMES AND MAILING ADDRESSES 18 CFR 5.18(C)(1)(I)(L)

The following Indian tribal contacts are believed by SCE to potentially have an interest in the Bishop Creek Project; although, no Project facilities are located on any tribal lands:

Bishop Paiute Tribe
50 Tu Su Lane
Bishop, CA 93514

Big Pine Paiute Tribe of Owens Valley
P.O. Box 700
Big Pine, CA 93513

Bridgeport Paiute Indian Colony
P.O. Box 37
Bridgeport, CA 93517

Timbisha Shoshone Tribe
P.O. Box 1779
Bishop, CA 93515

Fort Independence Indian Community of Paiute Indians
P.O. Box 67
Independence, CA 93526

Lone Pine Paiute-Shoshone Tribe
P.O. Box 747
Lone Pine, CA 93545

Utu Utu Gwaitu Paiute Tribe of the Benton Paiute Reservation
25669 Highway 6
Benton, CA 93512

North Fork Mono Tribe
13396 Tollhouse Road
Clovis, CA 93619

North Fork Rancheria of Mono Indians of California
PO Box 869
North Fork, CA 93643

Walker River Paiute Tribe
P.O. Box 220
Schurz, NV 89427

2.0 INFORMATION TO BE PROVIDED BY APPLICANT LICENSEE 18 CFR 5.18(C)(1)(II)

2.1. PLANS AND ABILITY OF THE APPLICANT TO OPERATE AND MAINTAIN THE PROJECT 18 CFR 5.18(C)(1)(II)(A)

As required by § 5.18(c) of Title 18 of the FPA this section contains information to be provided by a licensee who is the existing licensee for a project and discusses the safe management and O&M of the project; operational history and programs to upgrade project O&M; compliance with the current license; and actions related to the project that affect the public.

All applicants for a new license must provide the information described above, as well as a discussion of the safe management, operation, and maintenance of the Project.

2.2. STATEMENT OF MEASURES BY LICENSEE TO ENSURE SAFE MANAGEMENT, OPERATION AND MAINTENANCE 18 CFR 5.18(C)(1)(II)(B)

SCE implements various measures to ensure safe management and O&M at the Bishop Creek Project during all operating conditions. These measures are described in detail below. Part 12 inspections are conducted by FERC San Francisco Regional Office on a regular basis. SCE completes all necessary corrective actions to address comments and recommendations arising from FERC inspections in a timely manner.

2.2.1. PROJECT OPERATION DURING FLOOD 18 CFR 5.18(C)(1)(II)(B)(1)

To ensure safe management and O&M of the Bishop Creek Project during flood and high-flow events Station Order Binders are maintained for each power plant. This document includes individual site-specific plans (Station Orders) outlining actions and considerations for high water flow events at each station and/or its associated head and tail works. The Station Orders provide for contingency planning and response to both planned and unplanned Project high water flow events and includes the potential for a single event or, when considered in aggregate, for multiple power plant high water and/or flooding circumstances.

During periods of high flow, various measures are implemented to prevent water damage to infrastructure and equipment, including:

- Low level outlets on each intake is opened
- Power plants are operated at maximum hydraulic capacity (all units at full load) to minimize flooding
- Areas prone to flooding are sand bagged
- Storm doors are closed

- Sump pumps are checked/installed

2.2.2. EXISTENCE OF WARNING DEVICES FOR DOWNSTREAM SAFETY 18 CFR 5.18(C)(1)(II)(B)(2)

The Bishop Creek Project stores water in Lake Sabrina and Southlake and is classified as a “high hazard”.

Public safety measures for the Bishop Creek Project include:

- Signage to warn the public of hazardous areas and potentially dangerous conditions.

- Physical restraining devices to restrict public access to hazardous areas (e.g., fences around power plants, switchyards, forebays, and select flowline features; gates limiting access onto Bishop Creek Project facilities; grates and debris catchers on intake structures).

- Flowline safety measures that allow people and wildlife to safely cross the flowlines and other features that provide a mechanism for escape, should a person or animal fall into the water (e.g., footbridges; wildlife crossings; escape ramps; log and cable booms; escape fencing; flashers/hazers; ropes; and handrails in elevated areas).

2.2.3. DISCUSSION OF ANY CHANGES THAT MAY AFFECT EMERGENCY ACTION PLAN 18 CFR 5.18(C)(1)(II)(B)(3)

Pursuant to 18 CFR §12.20(a), 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. No changes are expected that may affect the EAP.

2.2.4. EXISTING OR PLANNED STRUCTURAL MONITORING DEVICES 18 CFR 5.18(C)(1)(II)(B)(4)

Bishop Creek Project includes the following monitoring devices to detect equipment failure and water conduit failure, including:

- Survey monuments

- Leakage weirs

- Headwater/tailwater gages

- Geomembrane inspection ports

- Seismic monitoring

- Line protection monitoring

Operators are dispatched to investigate and respond to alarms, as needed. SCE inspects all monitoring devices as part of routine O&M activities. If issues are identified, they are corrected as soon as discovered to ensure safe and reliable operation.

2.2.5. EMPLOYEE AND PUBLIC SAFETY RECORD 18 CFR 5.18(C)(1)(II)(B)(5)

No lost-time accidents have been recorded at the Bishop Creek Project in the last 10 years. In May 2011, SCE advised FERC of a drowning in the vicinity of Bishop Creek Intake No. 5 and Plant No. 5 in 2012, reported to FERC. No other fatalities or significant injuries have been recorded.

2.3. CURRENT PROJECT OPERATION AND CONSTRAINTS 18 CFR 5.18(C)(1)(II)(C)

The Bishop Creek Project begins diverting or impounding water at five points: Green Creek at Bluff Lake, South Fork Bishop Creek at South Lake, Middle Fork Bishop Creek at Lake Sabrina, McGee Creek at Longley Lake, and Birch Creek at Birch-McGee diversion. SCE currently operates the Bishop Creek Project under a 30-year license that was issued by FERC on July 19, 1994.

Bishop Creek Project operation is dictated by water availability. The water scheduling priority is based on the requirements of the Chandler and with wintertime flows regulated by the Sales Agreement. Operation is further constrained by minimum flow requirements below the dams and intakes. With the remaining water, plant operators consider unit availability and capacity to determine the best configuration at each power plant for power generation.

2.4. HISTORY OF PROJECT OPERATION AND MAINTENANCE 18 CFR 5.18(C)(1)(II)(D)

Bishop Creek Project developments were constructed during the following timeframes:

1905–1907	Power Plant No. 4 constructed by NCP Two additional generating units added by 1907
1905	Intake No. 4 dam constructed (Now referred to as Old Intake No. 4)
1907, 1919	Power Plant No. 5 constructed and expanded by SSP
1908 ca.	South Fork Diversion Dam Intake and Flowline constructed by NCP
1908	Intake No. 2 and Equalizing Pond constructed by NCP
1908	Power Plant No. 2 constructed by NCP
1908–1911 (or 1922 ca.)	Weir Lake Flow Monitoring Dam constructed by NCP (Now referred to Weir Lake Weir and Gaging Station)
1909	Intake No. 2 replaced following washout constructed by NCP
1909–1910	Lake Sabrina dam constructed by NCP
1909	Longley Lake dam constructed by NCP

1910–1911	Hillside (South Lake) dam rebuilt downstream from site of ca. 1890s Hillside Water Company dam constructed by NCP
1912	New Intake No. 4 dam constructed by NCP
1912	Original Control Station constructed by SSP
1912–1913	Intake No. 3 constructed by NCP
1913	Power Plant No. 3 constructed by NCP
1913	Power Plant No. 6 constructed by SSP
1919	McGee Creek diversion and intake constructed by NCP
1919	West Fork Birch Creek diversion and intake constructed (now referred to as Birch McGee diversion and intake constructed by NCP
1919	East Fork Birch Creek diversion and intake constructed by NCP (Decommissioned in 1996.)
1919	Control station took over management and distribution of electricity generated by the combined NCP and SSP
1922 ca.	Lake Sabrina Weir and gauging station constructed by NCP
1925	Green Creek diversion and intake constructed by NCP

Note: NCP Nevada-California Power Company; SSP Southern Sierras Power Company

Bishop Creek Project power plants commenced operations as follows:

1905	Power Plant No. 4 (NCP)
1907	Power Plant No. 5 (SSP)
1908	Power Plant No. 2 (NCP)
1913	Power Plant No. 3 (NCP)
1913	Power Plant No. 6 (SSP)

Note: NCP Nevada-California Power Company; SSP Southern Sierras Power Company

Bishop Creek Project (minus flowlines and penstocks; see below) has undergone the following upgrades and modifications since start-up (not including routine maintenance):

1905–1913 ca.	Penstock No. 4-2 added
1907	Power Plant No. 4 electrical substation (Building 109) constructed
1908	Power Plant No. 4 expanded and additional transformers, a fifth water wheel, and generator added
1909	Lower 1,250 feet of wooden pipe in penstock no. 4-1 replaced with 625 feet of 36-inch-diameter steel pipe
1909	Intake No. 5 dam raised approximately 10 feet

1913	Remaining 900 feet of penstock no. 4-1 wooden pipe replaced with 400 feet of 36-inch-diameter steel pipe and 500 feet of 32-inch-diameter steel pipe
1916–1917	Lower portion of Lake Sabrina dam raised 12 feet vertically with concrete
1918–1920	Original Power Plant No. 4 electrical substation (Building 109) converted to office and recreational facility
1919	Penstock no. 5-2 added
1920	Steel rods added to Intake No. 4 dam as reinforcement
1923	Intake No. 2 diversion dam raised from 28 feet to 41 feet
1924	Intake No. 2 diversion dam extensively reinforced with steel rods, both vertically and horizontally
1927	One-story addition made to Power Plant No. 2
1929	A portion of the round Douglas fir timbers replaced in kind on Lake Sabrina dam and 30,254 square feet of 3 feet x 12 feet redwood planking added to the dam face
1934	8-foot-wide spillway channel added to north end of Longley Lake dam
1934	Power Plant No. 5 damaged by fire but repaired and operational within 5 days
1930s ca.	Douglas fir timber sheathing on upstream face of South Lake dam replaced with redwood
1938	Power Plant No. 6 damaged by fire and rebuilt
1939	Semiautomatic equipment installed to operate Power Plant 5 remotely
1940	Semiautomatic equipment installed to operated Power Plant 6 remotely
1949	Power Plant No. 6 began continuous remote operation from control station
1950	Original timber-crib and rock-filled South Fork diversion dam replaced with a concrete dam on the same site. Intake pipe replaced with concrete structure.
1950	McGee Creek diversion dam extensively rebuilt
1950	West Fork Birch Creek diversion forebay enlarged
1950s ca.	South Lake dam 24-inch-diameter emergency waste pipes abandoned and encased in concrete and 24-inch-diameter steel valve pipe added to one end of the outlet tunnels
1951	Penstocks No. 4-1 and No. 4-2--1,100 feet of steel pipe removed and 1,100 feet of 54-inch-diameter steel common penstock installed beginning at the end of flowline no. 4
1953	Portions of steel pipe of Penstocks No. 4-1 and No. 4-2 removed, and 1,023 feet of 48-inch-diameter steel common penstock added, along with 180 feet of 30-inch-diameter steel pipe connecting with Penstock No. 4-1 and 513 feet of 48-inch-diameter steel pipe connecting with Penstock No. 4-2

1954	One-story addition added to Power Plant No. 3 control room building
1954	Intake No. 6 dam spillway partially reconstructed and raised 3 feet
1956–1957	Portions of concrete on Intake No. 3 diversion dam were chipped away and 40 yards of gunite applied to upstream and downstream faces. Portions of counterforts removed, steel added, and new concrete poured.
1956	Hydraulic hoists installed on Intake No. 4 dam slide and sluice gates
1957	Portions of Intake No. 5 Dam spillway reconstructed
1959	New central office building at Power Plant 4 constructed
1964	Upper 1,880 feet of Penstock No. 5-2 replaced
1965	Additions to original Power Plant No. 4 expanded.
1960s–1970s	Housing units at Power Plants No. 2, 3, 5, 6, and elsewhere around project (e.g., Birch McGee flowline) demolished. (Plant 4 becomes only location with onsite operators' housing)
1980–1981	West Fork Birch Creek diversion intake repaired and modified (now Birch McGee diversion and intake)
1983	South abutment wing wall of Intake No. 4 dam rebuilt after storm damage. New dam footings excavated and rebuilt with concrete.
1994	License-required gaging and fishwater plans implemented at McGee Creek, Birch McGee Creek, South Fork diversion, and at Power Plants No. 2, 3, and 4.
1996	Birch Creek East diversion and intake and flowline decommissioned and left partially in situ.

Flowline-Specific Modifications include the following:

1905	Flowline No. 4 constructed
1907	Flowline No. 5 constructed
1908	Flowline No. 2 constructed
1912–1913	Flowline No. 3 constructed.
1913	Flowline No. 6 constructed
1916–1917	6,402 feet of Flowline No. 4 replaced with 60-inch-diameter wood-stave flowline
1919	Flowline from West Fork Birch Creek to Penstock No. 2 constructed
1919	Flowline connecting East Fork Birch Creek to Penstock No. 2 constructed
1919	Flowline connecting McGee Creek with Birch Creek constructed

1920	Flowline from McGee Creek to Birch Creek extended with 1,600 feet of 14- to 12-inch-diameter steel pipe and 300 feet of covered wooden flume
1925	Green Creek flowline constructed
1925	Upper 600 feet of flowline no. 5 replaced with 60-inch-diameter redwood-stave pipe
1926	Wooden flume portion of McGee Creek flowline replaced with steel pipe
1933	Approximately 240 feet of flowline from West Fork Birch Creek to Penstock No. 2 replaced
1934	Several ditches and small pipes added to West Fork Birch Creek flowline connecting to the main flowline
1934	292 feet section of 8-inch-diameter steel pipe added midway on East Fork Birch Creek to Penstock No. 2 flowline to collect water from ditches running from the East Fork Birch Creek
1949	Approximately 200 feet of original Flowline No. 2 below Intake No. 2 replaced with 54-inch-diameter wood-stave pipe
1949	80 feet of West Fork Birch Creek flowline replaced
1949	2,870 feet of Flowline No. 5 replaced with 60-inch-diameter redwood-stave pipe
1951	1,800 feet of original South Fork diversion flowline replaced with 54-inch-diameter redwood-stave pipe
1952	3,350 feet of original Flowline No. 2 replaced with 54-inch-diameter redwood-stave pipe
1953 and 1958	A total of 238 feet of the first 289 feet of storm-damaged Flowline No. 3 steel pipe replaced in 1953 and 1958
1954	540 feet of upper portion of Flowline No. 5 moved 15 feet east and replaced with 60-inch-diameter reinforced concrete pipe
1955	Remaining 4,600 feet of original Flowline No. 2 replaced with 54-inch-diameter redwood-stave pipe
1956	Upper 420 feet of Flowline No. 4 replaced with 43 feet of 54-inch-diameter steel pipe and 377 feet of 60-inch-diameter steel pipe
1959–1960	6,132 feet of wood-stave pipe in Flowline No. 3 replaced with steel pipe
1967–1968	Remaining 6,402 feet wood-stave pipe in Flowline No. 4 replaced with 60-inch-diameter steel pipe; a portion of the lower section of Flowline No. 4 was realigned
1972	50 feet of Flowline No. 6 wood-stave flowline pipe replaced with 60-inch-diameter steel pipe
1973	40 feet of snow-damaged Flowline No. 3 wood-stave pipe replaced in-kind

1976	50 feet of Flowline No. 6 wood-stave flowline pipe replaced with 60-inch-diameter
1983	Entire 9,600 feet of (what is now known as) Birch McGee Creek flowline replaced
1983	2,900 feet of Flowline No. 6 wood-stave pipe replaced with 60-inch-diameter steel pipe
1984	1,600 feet of steel pipe in McGee Creek flowline replaced
1984	80 feet of Green Creek flowline steel pipe replaced with 16-inch-diameter steel pipe
1985	1,100 feet of 34-in-diameter riveted steel pipe in flowline from South Fork diversion dam to equalizing reservoir at Intake No. 2 replaced with 38-inch-diameter steel pipe
1991	Entire flowline no. 2 wood-stave pipeline replaced: 126 feet of 48-inch-diameter steel, 9,712 feet of 54-inch-diameter steel, and 38 feet of 48-inch-diameter steel
1996	Birch Creek East flowline decommissioned and left partially in situ
2009 ca.	Remaining wood sections of Flowline No. 5 converted to steel 60-inch-diameter pipe
2009 ca.	Remaining wood sections of Flowline No. 3 converted to steel 60-inch-diameter pipe

2.5. DISCUSSION OF POWER LOSSES OVER PAST FIVE YEARS 18 CFR 5.18(C)(1)(II)(E)

The following unscheduled (forced) outages occurred between 2015 and 2021 are described in Table 2.5-1 Below.

Table 2.5-1. Power Losses by Powerhouse and Unit

Dates	*Duration (hrs)*	*Plant*	*Unit*	*Cause*
3/16/2015	*1.75*	*2*	*1*	*Remedial Action Scheme (RAS)[1]*
3/16/2015	*1.75*	*3*	*1*	*Remedial Action Scheme (RAS)[1]*
3/16/2015	*1.75*	*5*	*1*	*Remedial Action Scheme (RAS)[1]*
3/16/2015	*1.75*	*6*	*1*	*Remedial Action Scheme (RAS)[1]*
6/10/2015	*2*	*2*	*1*	*Remedial Action Scheme (RAS)[1]*
6/10/2015	*2*	*2*	*2*	*Remedial Action Scheme (RAS)[1]*
6/10/2015	*2.5*	*3*	*1*	*Remedial Action Scheme (RAS)[1]*

Dates	Duration (hrs)	Plant	Unit	Cause
6/10/2015	2.5	3	2	Remedial Action Scheme (RAS)[1]
6/10/2015	25.75	5	1	Remedial Action Scheme (RAS)[1], flooded cable trenches
6/10/2015	1.75	6	1	Remedial Action Scheme (RAS)[1]
6/14/2015	0.5	5	2	Bearing oil pump
6/25/2015	16	5	2	Generator brush
8/9/2015	1	2	1	Remedial Action Scheme (RAS)[1]
8/9/2015	1	2	2	Remedial Action Scheme (RAS)[1]
8/9/2015	1.5	3	1	Remedial Action Scheme (RAS)[2]
8/9/2015	1.5	3	3	Remedial Action Scheme (RAS)[3]
8/9/2015	0.5	5	2	Remedial Action Scheme (RAS)[4]
8/9/2015	0.75	6	1	Remedial Action Scheme (RAS)[5]
9/15/2015	1.15	2	1	Remedial Action Scheme (RAS)[1]
9/15/2015	1.15	2	2	Remedial Action Scheme (RAS)[1]
9/15/2015	1.5	3	1	Remedial Action Scheme (RAS)[1]
9/15/2015	1.5	3	3	Remedial Action Scheme (RAS)[1]
9/15/2015	0.5	5	2	Remedial Action Scheme (RAS)[1]
9/15/2015	0.75	6	1	Remedial Action Scheme (RAS)[1]
10/6/2015	2	5	2	Generator brush
12/13/2015	3	2	2	Remedial Action Scheme (RAS)[1]
12/13/2015	3.75	3	1	Remedial Action Scheme (RAS)[1]
12/13/2015	2	5	1	Remedial Action Scheme (RAS)[1]
12/13/2015	5.5	6	1	Remedial Action Scheme (RAS)[1]
12/29/2015	6.25	5	2	Unit testing
3/3/2016	1.25	2	2	Remedial Action Scheme (RAS)[1]
3/3/2016	1.75	3	1	Remedial Action Scheme (RAS)[1]

Dates	Duration (hrs)	Plant	Unit	Cause
3/3/2016	0.5	5	1	Remedial Action Scheme (RAS)[1]
3/3/2016	1	6	1	Remedial Action Scheme (RAS)[1]
4/22/2016	1	2	1	Remedial Action Scheme (RAS)[1]
4/22/2016	1	2	2	Remedial Action Scheme (RAS)[1]
4/22/2016	1.25	3	2	Remedial Action Scheme (RAS)[1]
4/22/2016	1.25	3	3	Remedial Action Scheme (RAS)[1]
4/22/2016	.15	5	1	Remedial Action Scheme (RAS)[1]
4/22/2016	.5	6	1	Remedial Action Scheme (RAS)[1]
4/25/2016	0.75	2	1	Remedial Action Scheme (RAS)[1]
4/25/2016	0.75	2	2	Remedial Action Scheme (RAS)[1]
4/25/2016	1.25	3	2	Remedial Action Scheme (RAS)[1]
4/25/2016	1.25	3	3	Remedial Action Scheme (RAS)[1]
4/25/2016	1.5	6	1	Remedial Action Scheme (RAS)[1]
5/12/2016	8	5	1	Oil leak
5/24/2016	2.75	5	1	Oil leak
6/2/2016	240	4	5	Stator failure
6/25/2016	4.5	3	1	Oil leak
6/26/2016	3.5	3	1	Oil leak
6/28/2016	1	6	1	Exciter trip
6/29/2016	1	5	2	Generator brush
7/1/2016	984	5	2	Generator brush
10/1/2016	1.5	2	1	Remedial Action Scheme (RAS)[1]
10/1/2016	1.5	2	2	Remedial Action Scheme (RAS)[1]
10/1/2016	0.5	5	1	Remedial Action Scheme (RAS)[1]
10/1/2016	1	6	1	Remedial Action Scheme (RAS)[1]

Dates	Duration (hrs)	Plant	Unit	Cause
10/1/2016	1.75	6	1	Remedial Action Scheme (RAS)[1]
12/12/2016	1.25	2	2	Remedial Action Scheme (RAS)[1]
12/12/2016	0.75	3	1	Remedial Action Scheme (RAS)[1]
12/12/2016	2.25	5	1	Remedial Action Scheme (RAS)[1]
12/12/2016	2	6	1	Remedial Action Scheme (RAS)[1]
1/3/2017	0.25	3	1	Source line relay
2/9/2017	1	2	1	Remedial Action Scheme (RAS)[1]
2/9/2017	1.5	3	1	Remedial Action Scheme (RAS)[1]
2/9/2017	0.5	5	1	Remedial Action Scheme (RAS)[1]
2/9/2017	0.75	6	1	Remedial Action Scheme (RAS)[1]
3/16/2017	0.5	5	2	Generator brush
4/6/2017	1.75	5	2	Bearing oil pump
4/7/2017	1	2	1	Remedial Action Scheme (RAS)[1]
4/7/2017	1	2	2	Remedial Action Scheme (RAS)[1]
4/7/2017	1.25	2	3	Remedial Action Scheme (RAS)[1]
4/7/2017	1.5	3	1	Remedial Action Scheme (RAS)[1]
4/7/2017	1.5	3	2	Remedial Action Scheme (RAS)[1]
4/7/2017	1.5	3	3	Remedial Action Scheme (RAS)[1]
4/7/2017	2	6	1	Remedial Action Scheme (RAS)[1]
5/8/2017	2	2	1	Bearing oil pump
5/20/2017	83	3	1	Bearing oil pump
7/1/2017	96	3	3	Bearing oil pump
7/8/2017	0.5	2	1	Bearing oil pump
7/10/2017	1.5	2	1	Remedial Action Scheme (RAS)[1]
7/10/2017	1.5	2	2	Remedial Action Scheme (RAS)[1]

Dates	Duration (hrs)	Plant	Unit	Cause
7/10/2017	1.5	2	3	Remedial Action Scheme (RAS)[1]
7/10/2017	2	3	1	Remedial Action Scheme (RAS)[1]
7/10/2017	2	3	2	Remedial Action Scheme (RAS)[1]
7/10/2017	2	3	3	Remedial Action Scheme (RAS)[1]
7/10/2017	0.25	4	5	Remedial Action Scheme (RAS)[1]
7/10/2017	0.75	5	1	Remedial Action Scheme (RAS)[1]
7/10/2017	0.75	5	2	Remedial Action Scheme (RAS)[1]
7/10/2017	2.5	6	1	Remedial Action Scheme (RAS)[1]
7/14/2017	15.5	3	3	Bearing oil pump
7/21/2017	14	4	2	Bearing oil pump
7/24/2017	0.25	4	3	Exciter trip
7/31/2017	3	4	5	Bearing oil pump
8/13/2017	21	4	5	Bearing oil pump
8/14/2017	1.25	3	3	Turbine noise inspection
8/29/2017	6.25	5	1	Bearing oil pump
8/29/2017	0.5	5	2	Generator brush
8/31/2017	0.5	2	1	Remedial Action Scheme (RAS)[1]
8/31/2017	0.5	2	2	Remedial Action Scheme (RAS)[1]
8/31/2017	0.5	2	3	Remedial Action Scheme (RAS)[1]
8/31/2017	0.75	3	1	Remedial Action Scheme (RAS)[1]
8/31/2017	0.75	3	2	Remedial Action Scheme (RAS)[1]
8/31/2017	2.5	3	3	Remedial Action Scheme (RAS)[1]
8/31/2017	1.5	4	5	Remedial Action Scheme (RAS)[1]
8/31/2017	2	5	1	Remedial Action Scheme (RAS)[1]
8/31/2017	2	5	2	Remedial Action Scheme (RAS)[1]

Dates	Duration (hrs)	Plant	Unit	Cause
8/31/2017	2.25	6	1	Remedial Action Scheme (RAS)[1]
9/1/2017	8.5	3	1	Bearing oil pump
9/1/2017	439	4	5	Exciter issue
9/27/2017	0.25	5	1	Bearing oil pump
10/5/2017	2	2	1	Bearing oil pump
11/27/2017	0.75	3	3	Remedial Action Scheme (RAS)[1]
12/19/2017	1.5	6	1	Water in bearing
12/20/2017	0.5	5	1	55kv fault sympathy relay operation
12/31/2017	0.5	5	1	55kv fault sympathy relay operation
1/5/2018	450	5	1	Unknown
1/13/2018	14	2	1	Bad cooling water valve
4/12/2018	1	2	1	Remedial Action Scheme (RAS)[1]
4/12/2018	1	2	2	Remedial Action Scheme (RAS)[1]
4/12/2018	1.25	3	1	Remedial Action Scheme (RAS)[1]
4/12/2018	1.25	3	2	Remedial Action Scheme (RAS)[1]
4/12/2018	0.5	4	5	Remedial Action Scheme (RAS)[1]
4/28/2018	1.75	2	1	Remedial Action Scheme (RAS)[1]
4/28/2018	1.75	2	2	Remedial Action Scheme (RAS)[1]
4/28/2018	2	3	1	Remedial Action Scheme (RAS)[1]
4/28/2018	2	3	2	Remedial Action Scheme (RAS)[1]
4/28/2018	1.25	4	5	Remedial Action Scheme (RAS)[1]
4/28/2018	0.75	5	1	Remedial Action Scheme (RAS)[1]
4/28/2018	0.75	5	2	Remedial Action Scheme (RAS)[1]
7/8/2018	1.5	3	1	Plant ¾ 115kv Line relayed
7/8/2018	1.5	3	2	Plant ¾ 115kv Line relayed

Dates	Duration (hrs)	Plant	Unit	Cause
7/8/2018	1	4	5	Plant ¾ 115kv Line relayed
7/8/2018	0.75	5	1	Plant ¾ 115kv Line relayed
7/19/2018	2	3	1	Plant ¾ 115kv Line relayed
7/19/2018	2	3	2	Plant ¾ 115kv Line relayed
7/19/2018	2.5	4	5	Plant ¾ 115kv Line relayed
7/19/2018	0.5	5	1	Plant ¾ 115kv Line relayed
7/19/2018	7.25	5	2	Plant ¾ 115kv Line relayed
9/2/2018	1	2	1	55kv Line relayed
9/2/2018	1.25	2	2	55kv Line relayed
9/6/2018	1.5	2	1	Remedial Action Scheme (RAS)[1]
9/6/2018	1.75	2	2	Remedial Action Scheme (RAS)[1]
9/6/2018	2.25	3	1	Remedial Action Scheme (RAS)[1]
9/6/2018	2.5	3	2	Remedial Action Scheme (RAS)[1]
9/6/2018	0.5	5	1	Remedial Action Scheme (RAS)[1]
9/6/2018	3	6	1	Remedial Action Scheme (RAS)[1]
9/27/2018	5.25	3	2	Bearing oil pump
10/24/2018	3.5	3	1	Arc flash hazard
2/6/2019	6	4	3	Generator differential CT issue
2/14/2019	4.75	2	2	Remedial Action Scheme (RAS)[1]
2/14/2019	5.5	3	1	Remedial Action Scheme (RAS)[1]
2/14/2019	840	3	1	Arc flash hazard
2/14/2019	840	3	2	Arc flash hazard
2/14/2019	840	3	3	Arc flash hazard
2/14/2019	1320	4	3	Generator differential CT Replacement
2/14/2019	1.75	4	5	Remedial Action Scheme (RAS)[1]

Dates	Duration (hrs)	Plant	Unit	Cause
2/14/2019	7	5	1	Remedial Action Scheme (RAS)[1]
4/4/2019	0.75	2	1	Remedial Action Scheme (RAS)[1]
4/4/2019	0.75	2	2	Remedial Action Scheme (RAS)[1]
4/4/2019	0.75	2	3	Remedial Action Scheme (RAS)[1]
4/4/2019	1	3	2	Remedial Action Scheme (RAS)[1]
4/4/2019	1	3	3	Remedial Action Scheme (RAS)[1]
4/4/2019	1.5	5	1	Remedial Action Scheme (RAS)[1]
4/4/2019	1.75	6	1	Remedial Action Scheme (RAS)[1]
4/9/2019	4.25	3	2	Switching
4/9/2019	4.25	3	3	Switching
4/17/2019	2.25	3	1	Unit 3 issue
4/17/2019	2.25	3	2	Unit 3 issue
4/17/2019	2.25	3	3	Unit 3 issue
4/23/2019	5.5	3	3	Fan work
5/19/2019	0.75	3	3	Bearing temperature issue
6/17/2019	8.75	3	1	Switching
6/17/2019	8.75	3	2	Switching
6/17/2019	8.75	3	3	Switching
7/8/2019	2.75	3	1	Generator measurements
7/8/2019	2.75	3	2	Generator measurements
7/24/2019	1.5	3	1	2.4kv bus relay operation
7/24/2019	1.5	3	2	2.4kv bus relay operation
7/30/2019	7	3	1	Generator brush
9/27/2019	47	3	2	PSPS
10/2/2019	7	4	1	Governor knuckle leather issue

Dates	Duration (hrs)	Plant	Unit	Cause
10/3/2019	*1.5*	*2*	*2*	*Moved Unit 1 overhead*
10/8/2019	*17.25*			*PSPS*
12/26/2019	*264*	*2*	*2*	*Bearing oil pump*
4/8/2020	*13.75*	*6*	*1*	*55kv Line relayed*
11/13/2020	*1.25*	*2*	*1*	*Source line relay*
11/13/2020	*7*	*2*	*1*	*Source line relay*
11/13/2020	*1.25*	*2*	*3*	*Source line relay*
12/22/2020	*8.25*	*2*	*1*	*Source line relay*
12/22/2020	*8.25*	*2*	*2*	*Source line relay*
1/4/2021	*16.25*	*2*	*1*	*Source line relay*
2/3/2021	*10*	*2*	*1*	*Source line relay*
2/15/2021	*1.25*	*2*	*1*	*Source line relay*
4/1/2021	*298.25*	*3*	*2*	*Bearing ground issue*
4/13/2021	*11.75*	*3*	*2*	*PSPS*
6/30/2021	*17.75*	*5*	*1*	*Governor oil pump issue*
11/10/2021	*961.25*	*6*	*1*	*CB failure*
12/2/2021	*0.5*	*5*	*2*	*Remedial Action Scheme (RAS)[1]*
12/15/2021	*2.25*	*3*	*1*	*Remedial Action Scheme (RAS)[1]*
12/15/2021	*1*	*5*	*1*	*Remedial Action Scheme (RAS)[1]*
Total	***8261.2***			

[1]Remedial Action Scheme (RAS) reflects actions taken to manage the operation of the electrical grid following the loss of one or more transmission lines.

2.6. COMPLIANCE RECORD 18 CFR 5.18(C)(1)(II)(F)

SCE is responsible for complying with all requirements of the FERC license, all subsequent orders and amendments issued to-date, findings of FERC inspections, findings of other inspections under 18 CFR §12, as well as other FERC directives, information requests, or inquiries. SCE has not been cited for a license violation during the current license term and has never received a Notice of Violation from FERC related

to the Bishop Creek Project. SCE's compliance history related to inspections, incident reports, and temporary flow modifications is summarized below.

2.6.1. INSPECTIONS

Over the term of the existing license, SCE has participated in FERC environmental inspections, operations inspections, and dam safety/operation inspections. Any subsequent FERC directives and items identified during the inspections as requiring attention have been timely addressed by SCE and written documentation filed with FERC.

2.6.2. INCIDENT REPORTING

SCE filed seven incident reports (2007, 2008, 2016, 2016, 2017, 2020, and 2021) with FERC over the term of the existing license and one non-Project related safety incident reported in 2012. In all cases, SCE timely notified FERC of the incident and filed a written incident report. FERC subsequently issued letter orders concurring that the incident reports filed by SCE satisfy the requirements of 18 CFR § 12.10.

2.6.3. TEMPORARY FLOW MODIFICATIONS

SCE maintains minimum flows in Bishop Creek Project waters in accordance with Article 105 (*Maintain Minimum Flows and Summer Operations and Maintenance Plan*) and Article 114 (*Minimum Flow Requirement*) of the existing Project license. Article 401 provides that the minimum flows required by Articles 105 and 114 may be modified for short periods upon mutual agreement among SCE, the Forest Service, Bureau of Land Management, and the California Department of Fish and Wildlife. Additionally, Article 402 requires SCE to obtain FERC approval before modifying any of Bishop Creek Project's minimum flows to meet the requirements of Articles 105 and 114 for achieving the vegetation potentials within the riparian zones affected by the Project.

2.7. ACTIONS THAT MAY AFFECT THE PUBLIC 18 CFR 5.18(C)(1)(II)(G)

SCE generates and provides electric power in the region. Generation at hydropower facilities offsets the need for increased operation at existing baseload facilities, such as oil or diesel generation plants. Fossil-fueled plants produce atmospheric pollutants that must be controlled at significant costs. The avoided cost of air pollution, therefore, is a public benefit of hydroelectric generation.

SCE allows public access to the recreation facilities at the Bishop Creek Project; a full description of opportunities and associated recreational facilities provided by SCE are contained in Exhibit E of this license application.

SCE has various public safety programs and measures, including signage, physical restraining devices, flowline safety measures, and river safety measures as described in Section 2.2 above. These programs and measures are in use at the Bishop Creek Project.

2.8. SUMMARY OF OWNERSHIP AND OPERATING EXPENSES 18 CFR 5.18(C)(1)(II)(H)

SCE, the current licensee, is applying for a long-term license to continue to maintain and operate the Bishop Creek Project. Additionally, there is no competing application to take over the Bishop Creek Project. Because there is no proposal to transfer the Bishop Creek Project license, this section is not applicable to the Project. However, if the Bishop Creek Project license was transferred, annual ownership and operating costs that would be reduced include:

Operation and Maintenance Costs (Based on 5-year Average, 2017-2021)	$3,699,577
Depreciation (2021)	$1,634,433
Property Taxes (2021)	$ 369,90
Administrative & General Expenses (Calculated from 2021 Net Book Value)	$ 746,616
Total	**$6,081,085**

2.9. ANNUAL FEES FOR FEDERAL OR NATIVE AMERICAN LANDS PAID UNDER FPA 18 CFR 5.18(C)(1)(II)(I)

The annual fees for FERC Bill Year 2021, paid under part I of the FPA, are as follows:

Water for Power	$88,745
Federal Land Rents	$ 5,165
Total	**$93,910**

Water for Power – charges for the purpose of reimbursing the United States for the costs of administration of Part I of the FPA.

Federal Land Rents – annual fees paid for the occupancy of federal lands for flowlines, forebay and forebay tank and associated spillway channels, penstocks, power, and communication lines.

No Indian lands are included within the Bishop Creek Project boundary.