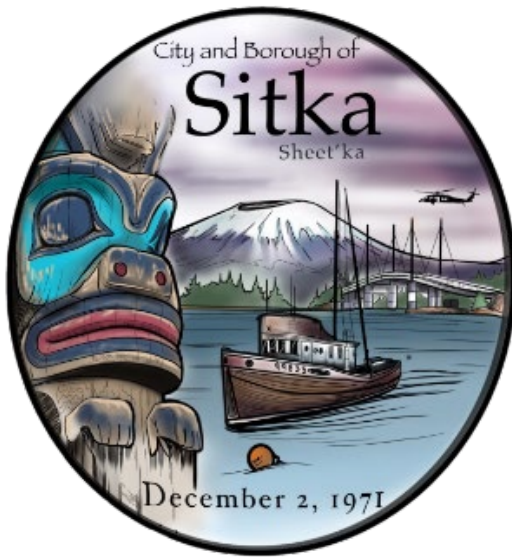


**Green Lake
Hydroelectric Project
FERC No. P-2818**



Proposed Study Plan

**Submitted by:
City and Borough of Sitka,
Alaska**

**Prepared by:
McMillen, Inc.**

September 2024

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- Appendix A. Revised Pre-Application Document Table 4-14 and Figure 4-31
- Appendix B. Study Requests Filed with FERC
- Appendix C. Recreation Plan Review
- Appendix D. Sample On-site Survey Instrument

Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ADFG	Alaska Department of Fish and Game
ADOT	Alaska Department of Transportation
AHRS	Alaska Historic Resources Survey
APE	Area of Potential Effect
AWC	Anadromous Waters Catalog
BGEPA	Bald and Golden Eagle Protection Act
CBS	City and Borough of Sitka
CWA	Clean Water Act
DLA	Draft License Application
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
FPA	Federal Powers Act
FPID	Fish Passage Inventory Database
FSH	Forest Service Handbook
FWCA	Fish and Wildlife Coordination Act
HPMP	Historic Properties Management Plan
ILP	Integrated Licensing Process
ISR	Initial Study Report
LiDAR	Light Detection and Ranging
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Understanding
MW	Megawatt
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
PA	Programmatic Agreement
PAD	Pre-Application Document
PSP	Proposed Study Plan
RSP	Revised Study Plan

SD1	Scoping Document 1
SHPO	State Historic Preservation Officer
SPD	Study Plan Determination
TCP	Traditional Cultural Property
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

The City and Borough of Sitka (CBS), Alaska, is in the process of relicensing the 18.54 megawatt (MW) Green Lake Hydroelectric Project (Project; FERC No. P-2818) with the Federal Energy Regulatory Commission (FERC). The Project is located in southeast Alaska on the west-central portion of Baranof Island. Green Lake sits at the headwaters of Silver Bay on the Vodopad River, approximately 10 miles southeast of Sitka and 95 miles southwest of Juneau, the capital of Alaska. On April 5, 1979, FERC issued an Order Issuing License (Major) for a 50-year license, which expires on March 31, 2029.

CBS is using FERC's Integrated Licensing Process (ILP) as established in 18 CFR, Part 5. In accordance with the requirements of the ILP, CBS filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on March 26, 2024. The PAD provides a description of the Project, including its facilities, operation, and affected resources. The PAD can be viewed on FERC's website using the following link: [The City & Borough of Sitka Alaska - Green Lake Hydroelectric Project, FERC Relicensing \(cityofsitka.com\)](https://www.ferc.gov/sites/default/files/2024/03/26/2024-03-26-City%20of%20Sitka%20Alaska%20-%20Green%20Lake%20Hydroelectric%20Project%20FERC%20Relicensing%20(cityofsitka.com).pdf)

CBS distributed the NOI and PAD to federal and state resource agencies, local government, Native American Tribes, and others thought to be interested in the relicensing proceeding. Following the filing of the PAD, FERC prepared and issued Scoping Document 1 (SD1) on May 20, 2024. FERC also held agency and public scoping meetings and a site visit on June 12, 2024. The FERC process plan and schedule provided agencies and interested parties an opportunity to file comments on the PAD and SD1 and requested studies by July 24, 2024.

Comments on the PAD and/or study requests were received from Alaska Department of Fish and Game (ADFG), FERC, and the U.S. Fish and Wildlife Service (USFWS). In accordance with the ILP requirements and SD1 process plan and schedule, CBS is required to file a Proposed Study Plan (PSP) within 45 days following the deadline for filing comments on the PAD (July 24, 2024). Accordingly, this document is CBS's PSP for conducting studies to inform the relicensing process.

1.1 Study Plan Meeting

CBS will conduct a virtual PSP meeting via Microsoft Teams from 10:00 a.m. to 12:00 p.m., Alaska Time, on October 3, 2024, in accordance with 18 CFR § 5.11(e). The purpose of the PSP meeting will be to summarize the PSP, methods therein, any initial information gathering or study requests, and to resolve any outstanding issues associated with the PSP. An email inviting all stakeholders on the distribution list to the PSP meeting was sent out on August 28, 2024. Stakeholders interested in participating in the virtual PSP meeting should RSVP to

Elizabeth Lack at lack@mcmillen.com or Kord Christianson of CBS at kord.christianson@cityofsitka.org by September 30, 2024. Prior to the meeting, CBS will provide all interested parties with a meeting invitation via email providing the necessary Teams link.

1.2 Comments on the Proposed Study Plan

Comments on this PSP, including any additional or revised study requests, must be filed 90 days after the PSP is filed with FERC, i.e., by December 6, 2024. Comments must include an explanation of any study plan concerns, and any accommodations reached with CBS regarding those concerns (18 CFR § 5.12). Any proposed modifications to this PSP must address FERC’s criteria in 18 CFR § 5.9(b).

1.3 FERC Process Plan and Schedule

The remaining pre-filing ILP schedule for the Project per the SD1 is presented in Table 1-1. If the due date falls on a weekend or holiday, the due date is the following business day. Early filings or issuances will not result in changes to these deadlines. The schedule below assumes a formal Study Dispute Resolution Process will not be necessary. If study dispute resolution is required, the process will follow the schedule presented in 18 CFR § 5.14.

Table 1-1. FERC Process Plan and Schedule

Pre-filing Major Milestone	Responsible Party	Date [Required ILP Timeframe]
File Proposed Study Plan (PSP)	CBS	September 7, 2024
Comments due on PSP	All Stakeholders	December 6, 2024 [90 days after PSP filed]
File Revised Study Plan (RSP)	CBS	January 5, 2025 [30 days after PSP comments filed]
File Comments on RSP	All Stakeholders	January 20, 2025 [15 days after RSP filed]
Issue Study Plan Determination	FERC	February 4, 2025 [30 days after RSP filed]
File Initial Study Report (ISR)	CBS	February 4, 2026
Initial Study Report Meeting	CBS	February 19, 2026
File Updated Study Report	CBS	February 4, 2027
Updated Study Report Meeting	CBS	February 19, 2027
File Draft License Application (DLA)	CBS	November 1, 2026 [Not later than 150 days before filing of Final License Application]
File Comments due on DLA	All Stakeholders	January 30, 2027 [90 days after DLA filed]

Pre-filing Major Milestone	Responsible Party	Date [Required ILP Timeframe]
File Final License Application [FLA]	CBS	March 31, 2027

2.0 Response to PAD Comments and Additional Information Requests

CBS appreciates the time and effort taken by agencies and stakeholders to review the PAD and provide comments. CBS received one comment on the PAD from ADFG. CBS's response is below. No requests for additional information were received.

2.1 PAD Comment and Response

ADFG Comment (in reference to Section 4.5.1.1 Aquatic Habitats of the PAD): Table 4-14 lists five streams in the Anadromous Waters Catalog (AWC) that are in the vicinity of the project access road. There are two additional AWC streams, however, within the project boundary and that cross under the access road which have been omitted from the PAD. The two streams are located within Herring Cove: AWC stream no. 113-41-10230 and AWC stream no. 113-41-10240. Please ensure that these streams are also included in the environmental review of the project.

Additionally, AWC stream no. 113-41-10230 has been documented by ADF&G to have a perched culvert. This culvert may provide fish passage at extreme high tides, but a fish presence survey and stream gradient assessment would need to be conducted to confirm adequate fish passage. ADF&G's Habitat Division plans to perform this assessment on their next site visit to Sitka in summer 2024. It is noted that although this anadromous stream is located within the FERC project boundary, the road and culvert at this location are maintained by Alaska Department of Transportation.

CBS Response: The Revised PAD Figure 4-31 (Appendix A), shows the CBS maintained portion of the Project access road, which includes AWC stream no. 113-41-10240. The remainder of the road is a state highway managed by the Alaska Department of Transportation (ADOT). As noted by ADFG in their comment, even though the FERC Project Boundary continues along the Project transmission line, and subsequently crosses AWC stream no. 113-41-10230, CBS does not maintain that portion of the road. Thus, CBS has no ability to maintain, improve, or modify the culvert associated with AWC stream no. 113-41-10230.

CBS has modified PAD Table 4-14 to include AWC stream no. 113-41-10230 and AWC stream no. 113-41-10240 and has noted whether they are crossed by the FERC Project Boundary and CBS-maintained portion of the Project access road. The Revised PAD Table 4-14 is included in Appendix A. The table presents information as it exists in the AWC at the time of this filing; however, CBS understands that ADFG's Habitat Division plans to perform additional

assessments in 2024, which may result in updates to the information in the AWC. CBS will keep this table updated with current information in subsequent filings.

3.0 Study Requests Received and Responses

Study requests were received from FERC and the USFWS. These study requests, CBS’s responses, and corresponding study plans are presented in Table 3-1. In their responses, CBS notes if modifications to the study request were made. Study requests filed with FERC are located in Appendix B.

Table 3-1. Study Requests Received, CBS’s Response, and Corresponding Study Plans

Agency Requesting Study	Proposed Study	CBS’s Response	Corresponding PSP Section
FERC	Recreation Study	CBS agrees that a recreation study would be beneficial to provide data on facilities and use. The requested study has been adopted with modifications; CBS has proposed a different methodology for collecting use data given the relatively remote location, generally low use, and weather conditions.	Section 4.1
USFWS	Access Road Water Crossing Assessment	CBS agrees that an assessment of water crossings along the access road would be beneficial with consideration of projected precipitation levels and stream processes. CBS can use this information for future road maintenance and potential upgrades. The requested study has been adopted with modifications; CBS has proposed a modified hydrology estimation method more suitable for local conditions.	Section 4.2

4.0 Proposed Studies

4.1 Recreation Study

4.1.1 Background and Purpose

A recreation study was requested by FERC. Per their request, this recreation study plan is proposed to assess the condition and uses of recreation sites/facilities within the FERC project boundary and site use. The study will describe existing recreational facilities, their recreational use and capacity, determine whether existing facilities are meeting user needs, and estimate future demand for recreation at the project.

4.1.2 Geographic Scope

The project is located on CBS-owned land, conveyed to CBS by the State of Alaska in 1979. The CBS-owned parcel is approximately 5,000 acres, which includes the entirety of the 1,232-acre Green Lake FERC project boundary. The land surrounding the CBS-owned parcel is part of the Tongass National Forest (Figure 4-1).

The recreation study will consider activities occurring within the FERC project boundary and surrounding area, but will have the following key focus areas:

- Green Lake access road from the locked gate near Herring Cove to Green Lake
- Green Lake
- Saltwater beach access road near the intersection of the road to the dam and the road to the powerhouse and boat anchoring area
- Trails onto or across CBS-owned land including:
 - Herring Cove – Beaver Lake Trail Head
 - Beaver Hump Trail
 - Bear Mountain Ridge Trail
 - Bear Lake Ridge Trail
 - Medvejie Lake Trail (also known as Warm Springs Trail)
 - Cross Mountain, Indigo Lake Trail
 - Trail out to Herring Cove Point & Island

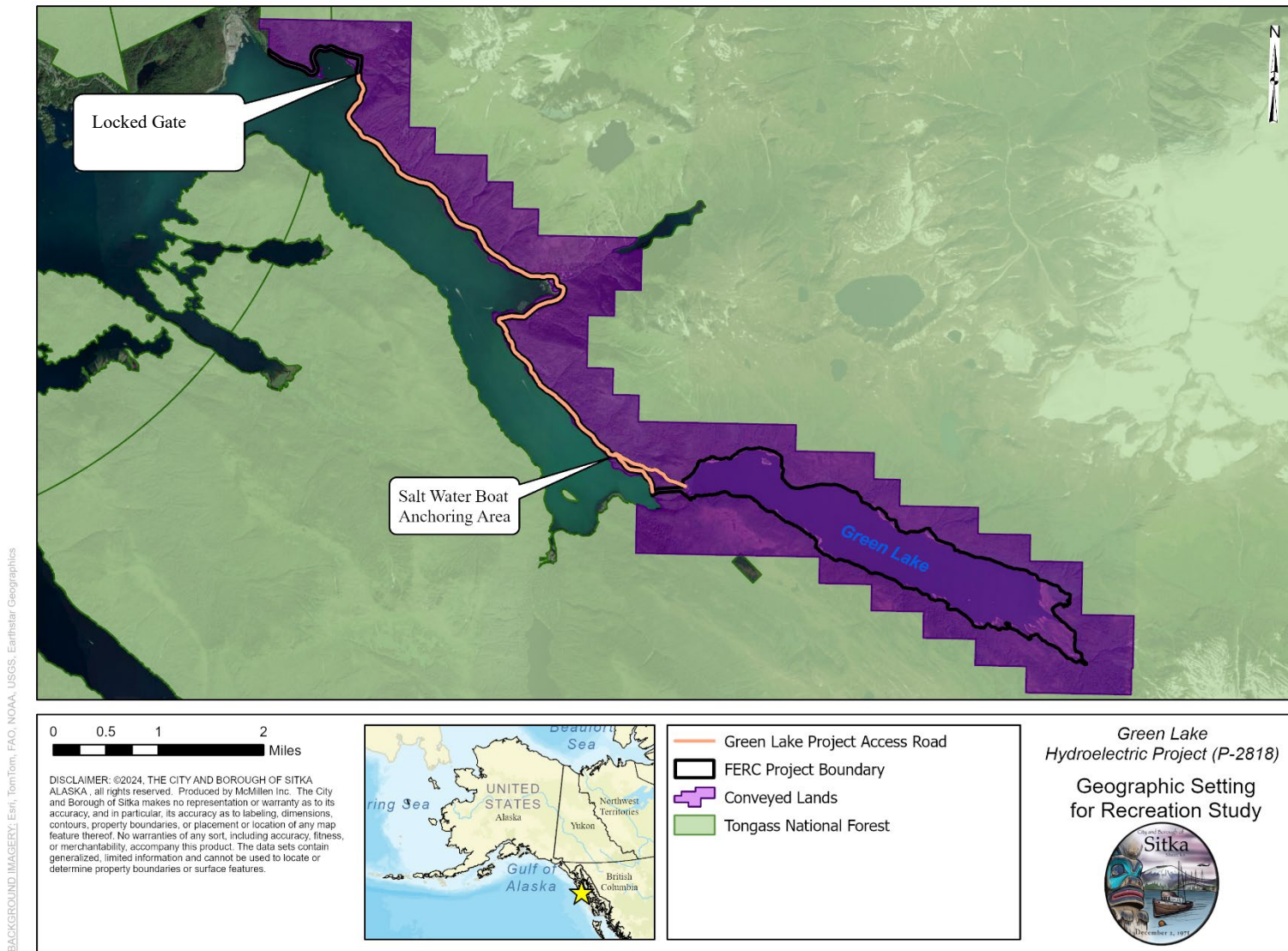


Figure 4-1. Geographic Setting for Recreation Study

4.1.3 Study Goals and Objectives

The goals of the recreation study are to gather information on existing recreation sites and facilities, evaluate existing recreational use and capacity, determine if existing facilities are meeting user needs, and estimate future recreational demands within the FERC project boundary and surrounding area. Study objectives include the following:

- Provide an inventory and map of the existing project recreation sites within the FERC project boundary, including amenities.
- Evaluate the condition of the recreation sites and facilities and estimate their capacities.
- Estimate current recreation use at each project recreation site.
- Identify potential measures to enhance recreation opportunities if necessary.

4.1.4 Relevant Resource Management Goals

Several existing and proposed community and regional resource management plans are available in and around Sitka. These are summarized and their goals, if available, are stated below:

- **Sitka Trail Plan, 2023 DRAFT**

This plan by Sitka Trail Works contains trail maintenance and development priorities. Agency and other participants include the Forest Service, CBS, and FERC.

- **USDA Forest Service, Tongass Land and Resource Management Plan, 2016**

This plan guides all natural resource management activities and establishes management direction for the Tongass National Forest. The plan states that the Sitka municipal watershed is within the Tongass National Forest. Silver Bay is identified as a small boat and mid-size tour boat route. Silver Bay is also identified as a Saltwater Use Area, and the head of Silver Bay is identified as a boat anchorage.

- **Tongass National Forest Sustainable Trails Strategy**

The goal of this strategy is to offer recommendations to create a more sustainable trail system within the Tongass National Forest.

- **Sitka Comprehensive Plan, 2018**

The goals of this plan are to

- maintain and expand Sitka's diverse recreational opportunities; and

-
- provide desirable community facilities and services in an efficient and cost-effective manner to meet the need of Sitka’s residents, businesses, and visitors.

- **Sitka Coastal Management Plan, 2007**

In 2011 when the State of Alaska withdrew from the federal coastal management program, Sitka codified their Coastal Management Plan’s enforceable policies in order to locally implement the plan. Also adopted are the boundaries; definitions; designated recreation, coastal access, and special management areas; and designated recreational use areas.

- **Sitka Short Term Tourism Plan, 2022**

The plan was drafted in response to forecasted increases in cruise visitors nearly doubling the number from previous high visitation seasons. The increase in numbers was primarily due to the opening of the privately owned Sitka Sound Cruise Terminal. The plan has five elements: dispersion, transportation, traffic, infrastructure needs, and future planning needs. The planning horizon is five years.

- **Statewide Comprehensive Outdoor Recreation Plan, 2022**

The Statewide Comprehensive Outdoor Recreation Plan is a statewide planning document, providing a statewide overview of outdoor recreational supply and demand profiles, resources, and issues.

A preliminary plan review to inform the recreation study methodology can be found in Appendix C Recreation Plan Review.

4.1.5 Existing Information and Need for Additional Information

Existing information was compiled from the recreation resource descriptions and inventory presented in the PAD, including a map and site visit.

Additional information needed includes the following:

- Geographic information for facilities and trails within the FERC project boundary and surrounding area
- Field reconnaissance of recreation facilities, use areas, and trails within the FERC project boundary and surrounding area
- Understanding the extent of subsistence activities in the FERC project boundary and surrounding area
- Identification of possible intercept survey locations
- Identification of possible automated counter and trail camera locations

-
- Estimates for future recreational use
 - Information about current and anticipated facility maintenance and management practices and available resources
 - Information about where recreation users are from (local or visitor); if visitor to Sitka, how did they get to Sitka (e.g., cruise ship, plane)
 - Information about how recreation users access Green Lake (e.g., hike, bike, boat, airplane)

4.1.6 Project Nexus

Recreation is a recognized project purpose under Section 10(a) of the FPA. Project operation can affect recreation access (e.g., fluctuating lake levels). This study will provide an understanding of the existing recreation facilities, how they are being used, and their relationship to project land and waters. The study will also inform whether additional measures are warranted to meet the project's existing and future recreation needs.

4.1.7 Methodology

The recreation study will analyze both water and land-based recreation uses, access considerations, and seasonality in recreational use of the project area. Data collection will consist of multiple methods including the following:

- Compilation of historical records, plans, mapping information, and agency records
- Data about site visits and visitor behavior from observations, automated counters, and intercept surveys
- Information about visitor preferences from intercept and self-selection surveys

4.1.7.1 Facility Inventory

An initial site visit with stakeholders was held in June 2024 to become familiar with the project area's general character and layout. A more comprehensive recreation facility inventory will be necessary during the study period. The facility inventory will accomplish the following:

- Map the location of facilities in relation to the FERC project boundary.
- Describe the amenities provided at each facility.
- Describe the condition of the facility/amenity and parking capacity (if any).
- Identify whether the facility is a project or non-project recreation facility.

-
- Determine the entity responsible for the operation and maintenance of each facility.
 - Describe the hours and season of operation/use.
 - Document facilities with photographs.

Mapping the location of facilities in relation to the FERC project boundary will be done through a combination of recreation expert site visits and coordination with CBS staff who already have spatial data. This will be used to create a GIS database of points of interest and facility improvements (points), trails (lines), and recreation zones (polygons). A symbolized map of project zones and facility improvements will be prepared. In the database, notes will be attributed to each facility describing relevant qualities such as age, condition, materials, dimensions, parking capacity, etc. A written description of each area, its facilities, and amenities will accompany the database.

Responsible parties will be attributed to each facility, distinguishing between ownership, management jurisdiction, maintenance responsibility, etc. This information will be collected through interviews with CBS staff and a review of formally recorded documents, policies, or management/maintenance agreements, to the extent these exist.

Information about when (hours of day, seasons) people use the area will be gleaned from CBS staff interviews and measured through methods described in the Recreation Use Study section (Section 4.1.7.2). Any on-site or off-site documentation of posted rules and regulations, along with their sources, will also be reported.

Each facility in the database will be documented with at least one photograph. Photographs can be stored in the GIS database and associated with a geographic location on a map. Relevant and illustrative photographs will be included in the static report.

4.1.7.2 Recreation Use Study

The recreation use study will collect information to describe recreation use in terms of amount, type, timing, distribution, and behavior. A suite of methods is proposed to comprehensively understand current recreational use patterns, preferences, and desired future opportunities and improvements. These methods include the following:

- Automated Counting and Monitoring of Visitors
- On-Site User Intercept Surveys
- Trailhead Observations

Automated Counting and Monitoring of Visitors

Automated counters are an accepted and widely applied method of conducting visitor counts during visitor-use monitoring of public lands and recreation areas (English et al. 2020, Leggett et al. 2017, Pettebone and Ziesler 2018). With proper installation, calibration, monitoring, and statistical processing of raw data, automated counters have been shown to produce confidently accurate estimates of visitor use at study sites (Pettibone et al. 2010). Automated counters are best applied to sites where visitors enter the area through a narrow entryway such as a gate or trailhead, are likely to only make one entrance per day/visit, and where vehicle use is limited to avoid the need for persons-per-vehicle multipliers (Pettebone and Ziesler 2018).

The single entrance (one-way-in, one-way-out) and linear corridor layout of the project area, combined with its remote location and anticipated low visitation numbers make this project ideal for automated counters. Compared to relying solely on in-person random sampling, automated counting will provide a wider sampling period, will collect information when there are unpredictable weather-related peaks in use, and will simultaneously inventory multiple sites within the study area. The result will be a larger dataset of objectively quantifiable visit counts and more reliable estimate of current use.

Data Types and Collection

Infrared counter data will be used primarily to quantify visits and estimate visitor hours spent in different zones or at different facilities within the FERC project boundary. CBS staff will assist in the regular monitoring of installed equipment and downloads/uploads necessary for consistent and continuous data collection. This study plan recommends bi-weekly (every two weeks) visits to inspect counters and cameras and download data.

Counter and Camera Locations and Installation

Up to twelve counters and four cameras will be used. Counters will be placed along Green Lake access road to count road use and estimate travel distance, at trail entrances along Green Lake access road to count trail use and departures from the road, and near facilities along Green Lake access road (hatchery, saltwater beach, Green Lake Dam, etc.). Installation and calibration will follow manufacturer guidelines and research best practices. Cameras are anticipated to be placed at or near the locked gate on the Green Lake access road and at attractions such as saltwater beach and Green Lake Dam. Counters and cameras may be relocated periodically throughout the study to increase the sampling area. Counters and cameras will be used for a full year to capture recreational use in all seasons (e.g., hiking, biking, hunting, skiing).

On-Site User Intercept Surveys

On-site surveys will gather information about each visitor and distinguish between recreation visits and non-recreation visits. Among recreational visitors, various types or levels of recreation demand will be assessed by asking about their chosen activities, settings where they choose to engage in those activities, desired experiences during the visit, and anticipated benefits resulting from the visit. Satisfaction and experience preference information can ultimately be used to assist managers in developing management objectives, standards, and indicators of performance. On-site surveys will be conducted throughout the study period by various means:

- CBS staff will conduct intercept surveys during regular visits to check automated counters (once every two weeks).
- Consultants and/or CBS staff will conduct intercept surveys during concentrated field-study efforts during the summer and fall.

Intercept survey administrators will read from a prepared script, requesting the visitor to fill out a survey, and will assist willing visitors with completing surveys. Administrator observations will also be recorded (time of day, number in party, mode and direction of travel, etc.).

Survey topics will include the following:

- Number of people in the party
- Mode of access
- Primary and secondary recreation activities
- Settings/areas visited
- Duration of visit
- Motivations and outcomes
- Desired recreational experiences
- Perceived benefits of recreation at the project area
- Satisfaction
- Perceptions of crowding
- Opportunities for improvement
- Demographics

A sample survey instrument with example questions covering the above topics can be found in Appendix D, Sample On-site Survey Instrument.

Trailhead Observations

Regular trailhead observations will document the number of cars parked at the Herring Cove–Beaver Lake Trail Head parking lot near the gate on the Green Lake access road. CBS staff will record the date and time of the observations and any other noteworthy details. CBS staff will complete these observations during visits to the project site to monitor automated counters and cameras. Observations at the trailhead and of visitors encountered along the trail will be recorded on a prepared form and sent to the study team.

4.1.8 Modifications to Requested Study

FERC’s original study request included an objective to “Estimate current recreation use and project use capacity at each project recreation site.” For this study, use capacity will be estimated by analyzing the conditions and availability of the physical resources.

FERC’s study request calls for “spot counts” (interpreted in this study plan as “visits” or “visitor counts”) of at least two hours per site on each day. Given (1) the remoteness of the location, (2) low visitation as reported by CBS, (3) likelihood that visitation is weather-dependent, and (4) the limited and linear nature of access to the project area, we propose automated monitoring using infrared trail counters and trail cameras as the primary means of measuring current visitation levels.

4.1.9 Proposed Deliverables and Schedule

4.1.9.1 Deliverables

In conformance with the FERC relicensing guidelines, CBS will deliver a study report that includes the following:

- The facility inventory with a map of project area recreational facilities
- Results and analysis of data from automated counters and cameras
- Results and analysis of in-person and self-selected surveys
- Prioritized opportunities for recreation facility improvement
- Projected changes to recreation demand in the project area over the term of the new license (30-50 years)

4.1.9.2 Schedule

Spring/summer 2025:

- Begin study season
- Purchase equipment and coordinate with CBS staff
- Conduct facility inventory
- Install automated counter and camera installation and calibration
- Begin intercept surveys

Summer/fall 2025:

- Continued data collection (counters, cameras, trailheads, surveys).
- Continue intercept surveys

Fall/winter 2025/2026:

- Continued data collection and analysis (counters, cameras, trailheads, surveys).
- Prepare Initial Study Report (ISR).

Winter 2026:

- Continued data collection and analysis (counters, cameras, trailheads, surveys)
- File ISR
- Hold ISR meeting and respond to public comments

Spring/summer 2026:

- File ISR meeting summary
- Demobilize/uninstall counters and cameras and analyze data

4.1.10 Level of Effort and Cost

The preliminary cost estimate to conduct the recreation study is \$138,000 to \$178,000. The range in cost reflects assumptions in data availability, quantity, and timing of targeted intercept surveys, and final reporting timelines. This includes a total of two week-long field visits to Sitka and the project site costing approximately \$16,000 each.

4.2 Access Road Water Crossing Study

4.2.1 General Description of Proposed Study

This study was requested by the USFWS and will provide a baseline inventory and assessment of stream crossing structures along the Green Lake access road. These data will be used to understand the current road condition and to develop a long-term maintenance strategy that considers projected precipitation levels and stream processes to minimize the road's adverse impacts on water quality and aquatic habitat. The subsequent strategy may identify crossings in need of more frequent maintenance and/or eventual upgrades.

4.2.2 Geographic Scope

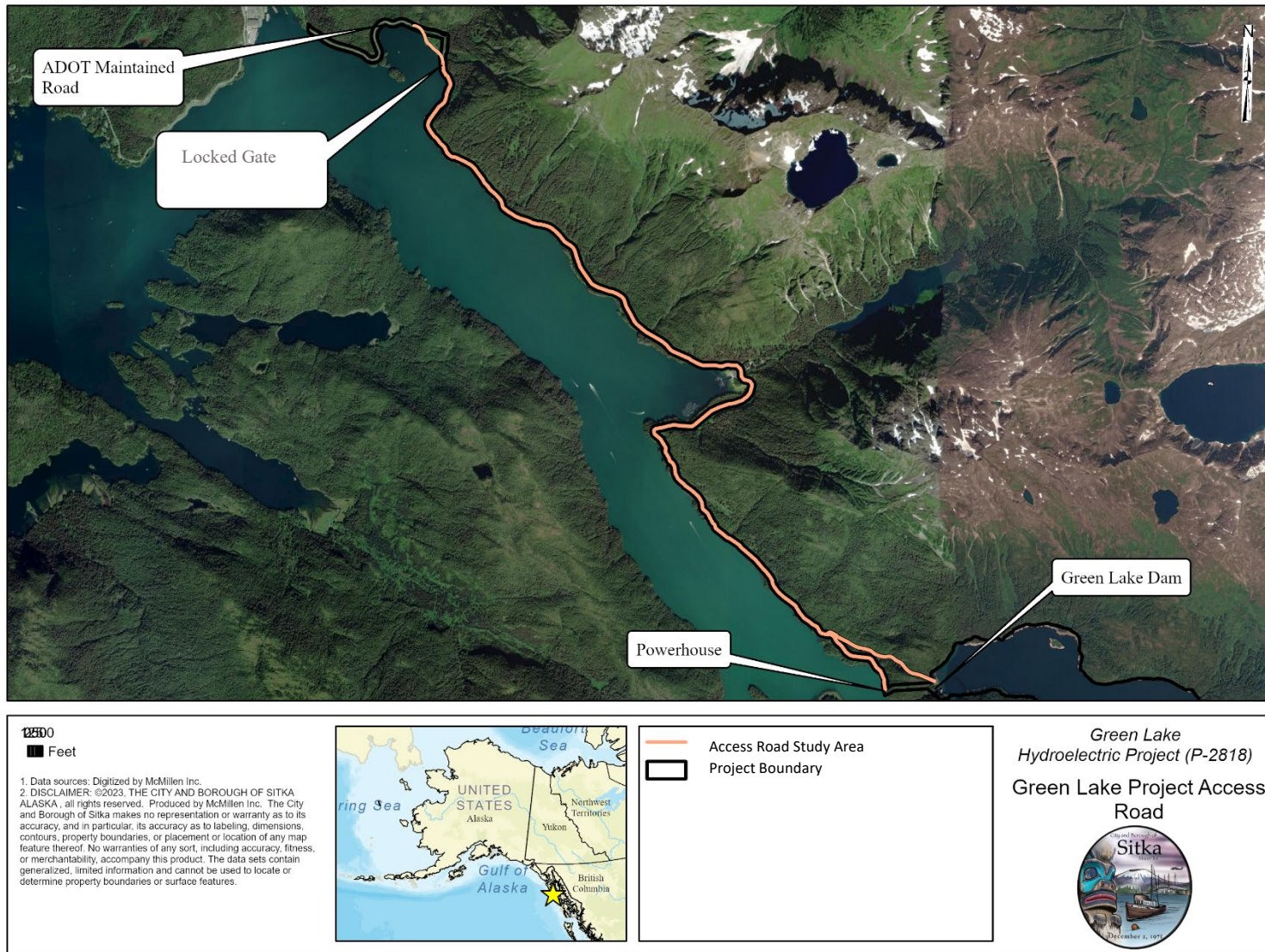
CBS is proposing to conduct this study along the approximately 7-mile stretch of the Green Lake access road from the end of the ADOT maintained section of road just before the locked gate near Herring Cove to Green Lake, as well as on the spur road to the Project powerhouse (Figure 4-2). CBS controls and maintains this stretch of access road and the spur road to the powerhouse. The portion of the road that is owned and maintained by ADOT and will not be included in this study (Figure 4-2).

4.2.3 Study Goals and Objectives

The goal of the study is to provide a baseline inventory and assessment of water crossing features along the CBS-maintained portion of the Green Lake access road, with consideration of stream characteristics and how those characteristics might change.

Specific objectives of the study are the following:

- Identify and survey water crossing structures along the CBS-maintained portion of the Green Lake access road following the Forest Service Handbook (FSH) road condition survey protocol (USDA Forest Service 2000) and document any issues with the structures.
- Categorize the streams at each crossing structure along the CBS-maintained portion of the Green Lake access road following FSH protocols for determining stream value class and channel type. Document any resource concerns and potential site-specific mitigation measures.
- Determine flood flow frequencies for the frontal watersheds feeding the stream crossings with consideration for climate projections.



Path: C:\Box\MCM Projects\City of Sitka\23-109 Green Lake Relicensing\5.0 Plans and Specs\6.6_GIS\aprx\greenlake_Layout; access_road

Figure 4-2. Geographic Setting for Access Road Water Crossing Study

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- Given the condition of the structures, stream characteristics, and project flood flow frequencies, document considerations for maintenance and/or upgrades at each crossing structures along the CBS-maintained portion of the Green Lake access road.
 - Build an inventory of the crossing structures along the CBS-maintained portion of the Green Lake access road, their stream features, and relevant notes and recommendations.

4.2.4 Relevant Resource Management Goals

The overarching resource management goal of the USFWS is to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

The USFWS has authority to request fish and wildlife resource studies related to this project in accordance with provisions in the Federal Power Act (FPA, 16 U.S.C. § 791 et seq.), Fish and Wildlife Coordination Act (FWCA, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), Clean Water Act (CWA, 33 U.S.C. 1344), National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.), Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d), and Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).

Under Section 10(j) of the FPA, National Marine Fisheries Service (NMFS) and USFWS are authorized to recommend license conditions necessary to adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of hydropower projects. Moreover, Section 10(a)(1) of the FPA requires FERC to condition hydropower licenses to best improve or develop a waterway or waterways for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) based on NMFS and USFWS recommendations and plans for affected waterways. Specific management goals are the protection of anadromous, trust fish species, and their habitats.

Consistent with their mission and with the legal authorities described above, the resource goal in this matter is to conserve existing fish and wildlife resources and their habitats along the CBS-maintained portion of the Green Lake access road and downstream to Silver Bay.

4.2.5 Existing Information and Need for Additional Information

ADFG maintains the Fish Passage Inventory Database (FPID; ADFG 2024), which contains data on over 2,500 stream crossings for fish passage, including five culvert structures along the CBS-maintained portion of the Green Lake access road. ADFG surveyed these five culverts

in 2012 and recorded culvert and stream measurements; the reports for each culvert are available on the FPID. Updated information on the condition of these culverts and stream characteristics is needed to determine maintenance and/or upgrades needs. Additionally, there is no available information on culverts along the access road that have not been surveyed by ADFG.

Climate projections for southeast Alaska indicate that annual precipitation will continue to increase, and it is likely the increases will be driven by precipitation events of greater intensity (Lader et al. 2022). These changes could put stress on road infrastructure not designed for the magnitude and frequency of future flow levels. Additionally, alluvial fan channels are abundant in the project area and present unique challenges for road maintenance and erosion control. Projected flood flow frequencies are needed to determine the adequacy of culvert structures along the CBS-maintained portion of the Green Lake access road.

4.2.6 Project Nexus

The access road is an important project component. Road drainage, when not maintained, can lead to road failures during floods, contributing large volumes of sediment downslope, sometimes into streams. Culverts in alluvial fans are especially susceptible to clogging by bedload sediment and woody debris and may require accelerated maintenance schedules. When it is necessary to replace crossing structures in alluvial fans, new structures should accommodate climate-projected flow levels and any special measures necessary to stabilize road drainage.

This study will identify and survey current road crossings and determine their condition. This information will be used to inform a road maintenance strategy that minimizes impacts to water quality and aquatic habitat.

4.2.7 Methodology

For this study, CBS will use the USFWS recommended methodology for assessing the culvert structures, the FSH for road condition surveys (USDA Forest Service 2000). For the stream value class and channel type components of the survey, CBS will use the USFWS recommended methodologies: Tier I protocol in the FSH – Aquatic Habitat Management (USDA Forest Service 2001) and the Region 10 Channel Type Revision (USDA Forest Service 2024). CBS will use USGS guidelines for estimating flood magnitude and frequency on ungaged sites on streams in Alaska to determine frequencies of flood flows for the frontal watersheds that feed stream crossings at the access road, with special consideration for climate projections (Curran et al. 2016) in conjunction with precipitation information from Lader

et. al. 2022. The proposed methodology has been used by other agencies include ADFG and the U.S. Forest Service in southeast Alaska to inventory and assess extensive road systems.

The potential location of culverts along the access road will be identified using any existing databases CBS has as well as available Light Detection and Ranging (LiDAR) topography information to identify places where the access road crosses drainage valleys. The access road will then be surveyed in its entirety to visually identify and confirm the presence of the culverts. Locational information will be collected using the ArcGIS Field Maps application and the FSH survey protocols will be conducted for each culvert. ArcGIS Field Maps will be used to store the database of the culverts and will include the information collected during the condition assessment and flood frequency analysis.

4.2.8 Modification to Requested Study

In their study request, the USFWS recommended using a different USGS guidance document for determining frequencies of flood flows (England et al. 2018 [2019]) than the one CBS proposed above in Section 4.2.7, Curran et al. (2016). The streams that cross the CBS-maintained portion of the Green Lake access road do not have stream gauges, and the guidance documented by England et al. (2018 [2019]) is aimed at larger watersheds and streams with gauges. The guidance documented by Curran et al. (2016) includes ungauged streams and is specific to streams in Alaska. CBS believes the guidance documented by Curran et al. (2016) will provide more accurate estimates for the specific conditions along the CBS-maintained portion of the Green Lake access road. CBS discussed this proposed change in guidance documented with the USFWS in a virtual meeting on August 14, 2024. The USFWS was supportive of this change.

4.2.9 Proposed Deliverables and Schedule

Fall 2024:

- Work with stakeholders to further refine this study and incorporate those refinements into the RSP

Spring/early summer 2025:

- Conduct field work for study

Winter 2025/2026:

- Document study results in the ISR

4.2.10 Level of Effort and Schedule

This study will be a single study season effort (2025). The estimated cost for this study is approximately \$45,000.

4.3 Cultural Resources Study

Although the Alaska Department of Natural Resources Office of History and Archaeology did not specifically request a study, FERC's ILP, under the FPA (16 USC § 791-828c) and its implementing regulations (18 CFR § 5.6 (d)(3)(x)), require the applicant to describe known cultural or historical resources within the proposed project and surrounding area. Relicensing is also considered a federal undertaking (36 CFR § 800.16(y)) under Section 106 of the National Historic Preservation Act (NHPA; formerly 16 USC § 470, now 54 USC § 300101 et seq.) and its implementing regulations (36 CFR § 800). Section 106 requires that possible effects of a federal undertaking on historic properties be assessed.

Historic properties are defined as any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (National Register). Traditional cultural properties are a type of historic property eligible for the National Register because of their association with cultural practices or beliefs of a living community (Parker and King 1998).

4.3.1 General Description of Proposed Study

This study will review information on known historic properties in the Area of Potential Effects (APE), defined below under Geographic Scope (Section 4.3.2), and will support FERC's Section 106 consultation process. The consultation process will provide FERC with information from the Alaska State Historic Preservation Officer (SHPO), Native American tribes (Tribes), and the Advisory Council on Historic Preservation (ACHP), enabling informed management decisions.

CBS will acquire textual and digital Alaska Historic Resources Survey (AHRS) data for known sites in the general project area for inclusion in their GIS system. A literature review of ethnographic, historical, and oral history data will identify cultural sites not yet listed in the AHRS. If possible, information from these additional sources will be transformed into data files for utilization in ArcGIS. GIS-compatible data files will also be obtained from repositories such as the Alaska State Geo-Spatial Data Clearinghouse.

Draft and final reports will be prepared that meet contemporary professional standards and follow the Alaska Office of History and Archaeology's Standards and Guidelines for

investigating and reporting archaeological and historic properties in Alaska (Historic Preservation Series Number II) and the Secretary of Interior's Standards and Guidelines for Reports (FR Vol. 48, No. 190, pp. 44734-44737). The final report will include formal recommendations of National Register eligibility for FERC review, and subsequent review and concurrence by consulting parties. If needed, a Historic Properties Management Plan (HPMP) will be prepared for the Project.

The cultural resources study will also include an inventory and assessment of Traditional Cultural Properties (TCPs). The requirement for identification of TCPs is included in 54 USC 302102-302108, Protection of Historic Properties (Federal Register, Volume 65, Number 239, December 12, 2000). A TCP is eligible for inclusion in the National Register "because of its association with cultural practices or beliefs of a living community" (Parker and King 1990, 1). TCPs are historic properties and as such are subject to the same Section 106 process as other archaeological and historical sites. A TCP is a tangible property that meets one or more of the four basic criteria set forth in the National Register regulations (54 USC 100101). The APE for TCPs may be larger than the APE for archaeological and historical sites and include more of the general Project area.

4.3.2 Geographic Scope

Based on the current knowledge of the project, the APE will include the lands enclosed by the existing FERC project boundary and lands or properties outside the FERC project boundary where continued project operation or other project-related activities may cause changes in the character or use of historic properties, if any historic properties exist. Consultation may also identify other areas that should be archaeologically surveyed.

The project APE will be defined in cooperation with all consulting parties, including FERC, the SHPO, and Tribes who have an interest in the project. Once a proposed APE is defined, the SHPO will concur in writing prior to any further analysis. FERC will be included in any correspondence with the SHPO regarding the APE. Final definition of the APE will facilitate and focus subsequent cultural resource planning.

4.3.3 Study Goals and Objectives

The goal of the study is to comply with Section 106 of the NHPA through programmatic, ongoing consultation with the Alaska SHPO, Tribes, and other interested parties.

4.3.4 Relevant Resource Management Goals

For hydropower licensing actions, FERC typically complies with Section 106 by entering into a Programmatic Agreement (PA) or Memorandum of Agreement (MOA) with the license

applicant, the ACHP, and SHPO. This agreement is then incorporated by reference into the project license when it is issued. Because it is not always possible for FERC to determine all the effects of various activities that may occur over the course of a license, the PA or MOA typically provides, and FERC may require as a license condition, that the licensee develop and implement an HPMP that includes consideration and appropriate management of effects on historic properties throughout the term of the license.

4.3.5 Existing Information and Need for Additional Information

The following information regarding cultural resources in the Green Lake (Tlingit: Gageit' Tá) project area comes from the AHRS and the PAD. Since this is a public document, location information for cultural sites is intentionally vague in the following discussion.

4.3.5.1 Existing Discovery Measures

Three previous anthropological or archaeological studies have included the project area. In 1946, Walter Goldschmidt and Theodore Haas (1998) interviewed Sitka Tlingit elders to evaluate Tribal possessory rights in the region based on land use prior to 1884. Their research was republished in book form in 1998.

In 1977, Robert Ackerman and Peter Mehringer from Washington State University carried out field investigations consisting of an extensive archaeological survey and interviews with local people about history and land use patterns in the proposed project area. They conducted a 6-day ground survey of the Silver Bay shoreline from Herring Cove to the Green Lake outlet, the shoreline from Green Lake outlet to Salmon Lake outlet, the proposed powerhouse and damsite areas, both shores of Green Lake, and the valley bottom and slopes of the Vodopad River above Green Lake. Their survey included areas that could be impacted by construction of the access roads, the transmission line, an alternate section of the line, the substation, and the powerplant facilities, as well as lands that would be affected by the increased impoundment of Green Lake waters. Based on their survey, the investigators concluded that the project “will not threaten significant archaeological sites. In fact, there appear to be few sites of even inconsequential archaeological value within the entire area” (Ackerman 1977, 25).

In 2005, Paul Rushmore with Wrangell Research Associates, interviewed Sitka Tribal members about traditional use of the Sawmill Creek area for relicensing of the Blue Lake Hydroelectric Project, which included traditional use of Herring Cove and Silver Bay. Adjacent to the project area, U.S. Forest Service (USFS) archaeologist W. Mark McCallum (2010) visited three mining sites in 2010 to evaluate their eligibility for listing on the National Register prior to mine entrance closure. The Sawmill Creek Road, also adjacent to the project area, was surveyed and tested in 1983, 1993 (Kell 2012), 2003 (Mobley 2003), and 2009 to 2011 (Kell

2012). Charles Mobley's (2003) survey included interviews with people who lived along the road. USFS archaeologist Myra Gilliam documented the Sawmill Creek Campground (SIT-01073) in 2016. In 2017, Aubrey Morrison (Morrison and Yarborough 2017) documented historic structures in Sawmill Cove that were removed during a dock construction project.

Limited additional information about Sitka people's early contact with traders and explorers is available in eighteenth and nineteenth century journals (e.g., De Armond 1978). Russian Missionary Ivan Veniaminov (1984 [1840]), U.S. Census agent Ivan Petrof (1884), and U.S. Navy Lieutenant George Thornton Emmons (1991) described the culture of Sitka and other Tlingit people during the nineteenth century.

Sealaska Corporation did not claim any lands in the project area as part of the Alaska Native Claims Settlement Act of 1971. From 1988 to 1992, Herb Hope (2000) led interviews and expeditions to identify the route of the Sitka Kiks.ádi Survival March Trail (SIT-00778), whose area includes the mountain ridges overlooking Silver Bay.

4.3.5.2 Cultural Sites

Ackerman (1977) identified about a dozen standing cabins and cabin ruins, a mining debris scatter, and a 1930s Civilian Conservation Corps (CCC) trail in the project area that were not assigned AHRS numbers. The current hydroelectric facilities at Green Lake consist of the dam, reservoir, spillway, penstock, powerhouse, and transmission lines. Green Lake Dam is a concrete, double-curvature, variable-radius, arch dam. The dam was constructed in 1982 and will reach 50 years of age during the proposed relicensing period. The power intake is 141 feet below the dam crest and is controlled by a vertical-lift headgate. The water conveyance has a short section of 8-foot-diameter steel penstock with two mechanical couplings. There is an initial steel-lined section that transitions to a 1,900-foot-long, 9-foot-diameter, reinforced concrete-lined power tunnel that conveys water downstream to the powerhouse. The tunnel bifurcates into two, steel-lined penstocks immediately upstream of the powerhouse.

The powerhouse is a reinforced-concrete structure located on the cove at the southeast end of Silver Bay and is not an integral component of the main dam structure. The building is 78 feet long and 48 feet wide and houses two turbine-generator units, each with an installed capacity of 9.27 MW (18.54 MW total). From the substation located adjacent to the Green Lake powerhouse, an overhead 69 kV transmission lines follow the Green Lake access road within a 200-foot-wide easement for approximately 9 miles to an interconnection at the Blue Lake powerhouse and substation (FERC No. 2230).

William Hanlon, interviewed by Ackerman in 1977, identified a mine shaft, "Robert's Tunnel," dug in 1936, in the project area, but Ackerman was unable to locate the site and concluded

that it was likely not on the shore of Green Lake. Ethnologist John R. Swanton (1908, 453, in Emmons 1991, 421) wrote of a spirit that exists in the persistent winds out of Silver Bay.

Sawmill Cove

A Russian mill, initially developed in 1845 in the Sawmill Cove area, was replaced by an American mill in 1882 (Kell 2012). In 1913, the cove was the site of W.P. and May Mills' hydroelectric generating station. In 1940, Edward Morke developed the mouth of Sawmill Creek into a farm called Sanitary Dairy, which included a road of crushed rock (SIT-00935). He sold the property in 1952 to John and Freda Van Hornin. The Van Hornins renamed the dairy Blue Lake Farms and operated it until the mid-1950s. Afterwards, the site was used by the Alaska Lumber and Pulp Company as a mill and hydroelectric power station. The property included the Alaska Pulp Mill administration building (SIT-00792) and dock remains (SIT-01074).

Most evidence of early historic use of Sawmill Cove has been destroyed by later development (Ackerman 1977). All AHRS sites in Sawmill Cove have been found ineligible for listing on the National Register. Investigations in 1983 and 1993 identified bark-stripped yellow cedar on Sawmill Road; although, no AHRS numbers were assigned (Kell 2012).

Silver Bay Village

Robert Sam, who was born in 1953, told Paul Rushmore of a village site in the project area; although, he said there were “no smokehouses or anything” (Rushmore 2005, 22). It is unclear whether Sam was remembering an archaeological site or a story of a Silver Bay village. The possible village location was outside Rushmore's (2005) project area, so it was not surveyed or tested. While Ackerman (1977) identified cabin ruins during a pedestrian survey in that area, he never documented shovel tests that could have identified subsurface archaeological sites.

Petrof (1884, 32) reported that 39 Tlingit people lived on Silver Bay in 1880. Although the 1883 and 1891 Coast Pilots, based on information collected sometime between 1865 and 1889, described Silver Bay in some detail, neither mentions a village on the bay. George Lewis knew of a camp ruin with a smokehouse that an Indigenous man named Laacaeke had used to smoke fish prior to the mid-1940s (Goldschmidt and Haas 1998). Rushmore (2005) suggested the camp was the village referenced by Petrof (1884), and Ackerman (1977) argued that the camp was likely outside the present project area.

Emmons (1991, 104), who lived in Sitka in the late nineteenth century, reported that king salmon caught at the head of Silver Bay were twice the size of those in Sitka Harbor. By the mid-twentieth century, gold mines and cabins had been developed around Silver Bay, while

local Tlingit people trapped along the shores of the bay and trolled its waters for king salmon (Goldschmidt and Haas 1998, 64).

4.3.5.3 Tribes That May Attach Cultural Significance to Historic Properties

Indigenous groups that may attach religious or cultural significance to historic properties in the project vicinity include the Sitka Tribe of Alaska, Shee Atika, Inc., and Sealaska Corporation. Although no Traditional Cultural Properties have been identified in the project area, the Sitka Kiks.ádi Survival March Trail (SIT-00778) includes the mountain ridge overlooking Silver Bay from the northwest. The site was found ineligible for the National Register in 1996 because investigators could not define an exact route. The Sitka Tribe challenged the finding in court (Hoonah Indian Association v. Morrison 1998) and subsequently nominated the site for listing on the National Register. The nomination is still pending.

4.3.6 Project Nexus

The study plan is intended to provide sufficient information regarding the nature of historic properties located in the APE so that potential effects of continued operation of the project can be adequately assessed. Findings of Effect on historic properties in the APE will be included in the study report and reviewed with consulting parties. Study information will aid in developing measures to be proposed in the draft and final relicensing applications to protect or minimize any adverse effects on historic properties. The Section 106 compliance study will establish a consultation process that ensures that the Project remains in compliance with Section 106 throughout the life of the license.

4.3.7 Methodology

Much of the research and identification of cultural resources will follow the steps of the Section 106 process as outlined in 54 U.S.C. § 36108. CBS, or their representative, will be responsible for

- responding to project notifications;
- attending meetings;
- conducting an in-depth literature review to identify known cultural resources within the project study area;
- assisting in determining an APE;
- consulting with Tribes, local entities, and state and federal agencies;
- completing appropriate analyses; and
- preparing reports and other documents.

All services and products developed during the cultural resources study process will meet industry standards, largely codified in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, National Register Bulletins, and the Alaska Office of History and Archaeology Historic Preservation Series.

Methods for completing environmental documentation will include the following:

- A review of existing information to identify and document known historic properties located within the defined APE
- Draft and final reports, including any necessary determinations of eligibility and recommendations related to potential effects of the Project
- Completion of an HPMP, if needed

The need for any field activities will be determined after an evaluation of the relationship between known significant cultural resources in the APE and the needs of ongoing project operation and maintenance. The nature and extent of a survey would be contingent on the level of documentation needed to support the project moving forward. Possible issues pertaining to cultural resources include the Green Lake Dam and the other project facilities that have not been evaluated for National Register eligibility.

The 1930s CCC trail, which Ackerman (1977) listed as the Silver Bay-Green Lake Trail, has not been formally evaluated for eligibility for the National Register. Ackerman's description of the trail seems to reflect the generally prevailing attitude of the time toward early twentieth century historic trails:

While not exactly of concern in terms of historic cultural values, the scenic value of the trail constructed by the Civilian Conservation Corps in the 1930s to Green Lake should be considered. The access roads will cross this trail at two points. I am unaware of plans that are being considered in terms of the recreational value of the Green Lake Dam, but the trail itself is quite spectacular. Preservation of the trail should be considered in the land use plan (Ackerman 1977, 20).

Although subject to a thorough ethnographic and pedestrian survey, the project area has not been surveyed since 1977 (Ackerman 1977). All the cabins, cabin ruins, and historic debris scatters Ackerman reported were evaluated over 40 years ago. Also, key landforms at the heads of Herring and Bear cove and the outlet of Green Lake have not been shovel tested to identify subsurface cultural resources, even though they are the locations of several cabins, demonstrating their suitability for settlement. Additionally, several decades later, Robert Sam remembered a village in one of these areas (Rushmore 2005).

The cultural resources study will be accomplished or supervised by personnel who meet the Secretary of the Interior's Professional Qualification Standards (48 FR 4473 - 44739). CBS will comply with applicable laws and regulations, will follow the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-18), and will comply with the identification and testing procedures presented in the Guidelines for Evaluating and Registering Archaeological Properties (Little et al. 2000). Reports will meet contemporary professional standards and will follow OHA's Standards and Guidelines for investigating and reporting archaeological and historic properties in Alaska (Historic Preservation Series Number 11) and the Secretary of Interior's Standards and Guidelines for Reports (FR Vol. 48, No. 190, pp. 44734-44737). A completed OHA Cultural Resources Report Coversheet will be submitted with each report.

Archaeological and historic resources identified during previous anthropological or archaeological studies will be referenced to the project plans and include GPS coordinates and, if they do not already have one, assign an AHRS number from the OHA. CBS will complete sufficient investigation and research on identified sites that could be potentially affected by continued operation of the project to support any needed recommendations of National Register eligibility to be submitted to the SHPO for concurrence.

In the early phases of the project, CBS should receive a delegation of consultation authority from FERC. Consultation will then begin with interested parties, and the APE will be defined. Consultations with Tribal governments, Native organizations, the SHPO, and other interested parties will be initiated in the fall of 2024 and will continue throughout the duration of the project. Additional interested consulting parties will be included as they are identified.

4.3.8 Proposed Deliverables and Schedule

Fall/winter 2024/2025:

- Address any proposed revisions to the study plan.
- Receive delegation of consultation authority from FERC.
- Hold consultation meetings as appropriate, including consultation on the APE and TCPs.
- Perform a literature review.
- Send letters to consulting parties.
- Review background information and research.
- Hold additional consultation meetings to discuss project and address additional concerns as appropriate.

Spring/summer 2025:

- Complete the study season, if needed.

Spring 2026:

- Provide an Initial Study Report.

4.3.9 Level of Effort and Cost

It is estimated that the Section 106 compliance study will cost approximately \$75,000 to \$150,000. A range of costs is provided because it is yet uncertain to what extent the project has the potential to impact significant cultural resources. FERC uses standardized Programmatic Agreement formats to implement HPMPs that require little negotiation or alteration prior to execution.

5.0 Study Schedule and Process

CBS intends to conduct the studies outlined in Section 4.0 during the 2025 field season. The estimated start and completion dates for the field efforts associated with the proposed studies are provided in Table 5-1. Study progress reports will be filed with FERC halfway through the study season (i.e., approximately August 2025).

The Initial Study Report is scheduled for preparation following the 2025 field season and will be issued no later than one year following FERC’s Study Plan Determination (SPD), which is anticipated February 4, 2025. CBS will schedule the Initial Study Report meeting once the date for the availability of the Initial Study Report is known. Using the schedule in the SD1, CBS anticipates that the Initial Study Report will be available by February 4, 2026, and the Initial Study Report meeting will occur in late February 2026. CBS will file an Updated Study Report (year two studies, if necessary) within the time limits provided in 18 CFR § 5.15(f) as detailed in FERC’s process plan and schedule currently published in SD1. It is notable that given the limited impacts associated with the continued operation of this project and the minimal areas identified from stakeholders, the potential exists for a single study season in 2025. Given this, the revisions and/or need for major updates in the Updated Study Report may not be necessary.

Table 5-1. Estimated Start and Completion Field Dates for Proposed Studies

Proposed Study	Estimated Start Date	Estimated Completion Date
Recreation Study	May 2025	May 2026
Access Road Water Crossing Study	June 2025	July 2025
Cultural Resources Study	June 2025 (if needed)	September 2025 (if needed)

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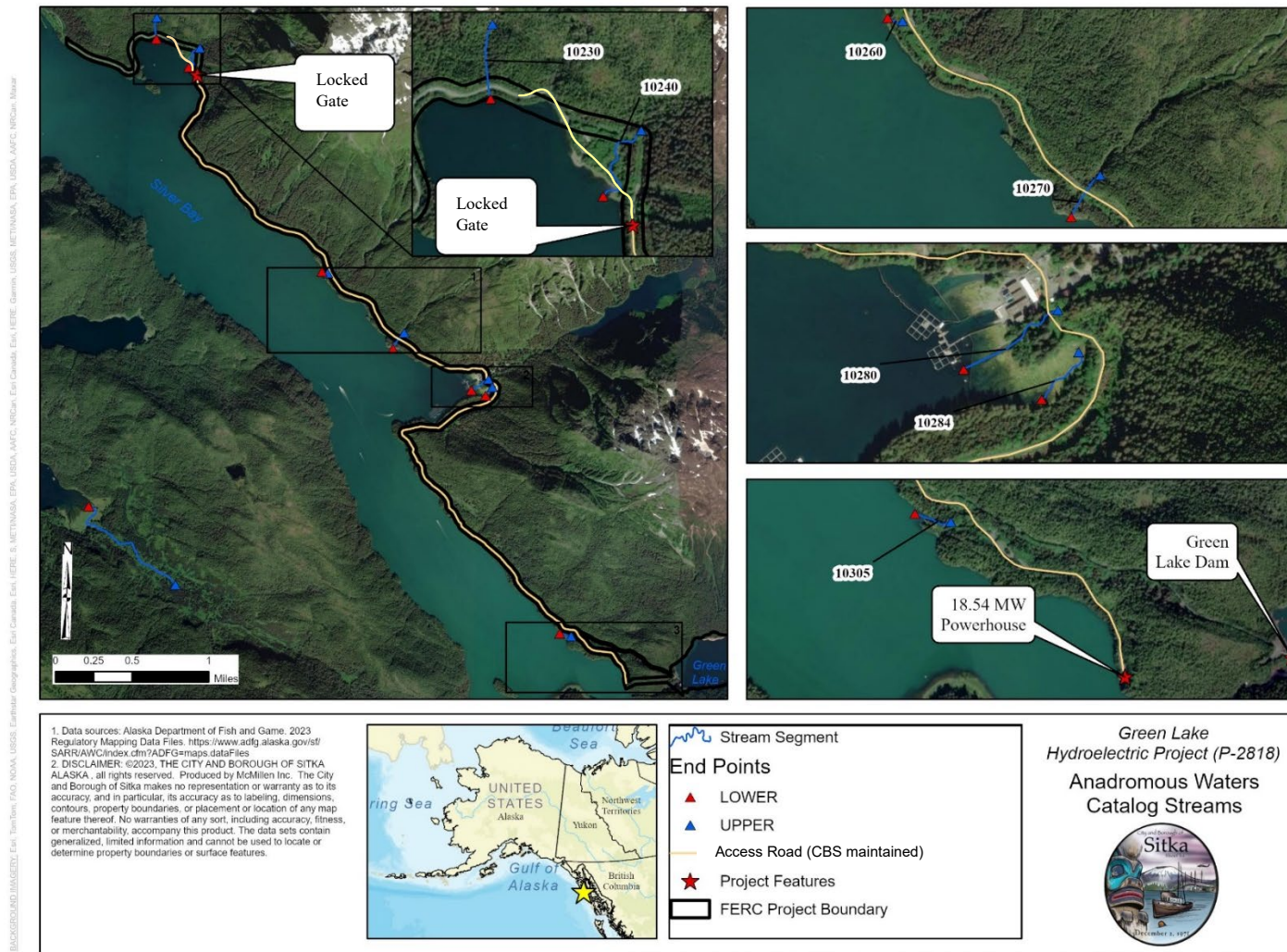
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Appendix A. Revised Pre-Application Document Table 4-14 and Figure 4-31

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Revised PAD Table 4-14. Anadromous Water Catalog Designated Streams in the Vicinity of the FERC Project Boundary

AWC Stream #	Name	Length (ft)	Confluence	Species Observations	Life Stage	Crossed by CBS-maintained portion of access road?	Crossed by FERC Project Boundary?
113-41-10305	Unnamed	400	Silver Bay	Coho Salmon	Rearing	No	No
113-41-10284	Unnamed	370	Bear Cove	Chum, Coho, Pink Salmon; Dolly Varden	Present, Rearing	No	No
113-41-10280	South Fork Medvejie Creek	400	Bear Cove	Chum, Coho, Pink Salmon; Dolly Varden	Present, Rearing	Yes	Yes
113-41-10270	Unnamed	650	Silver Bay	Chum, Coho, Pink	Present	Yes	Yes
113-41-10260	Unnamed	250	Silver Bay	Chum, Coho, Pink	Rearing	No	Yes
113-41-10240	Unnamed	317	Herring Cove	Chum, Pink	Present, Rearing	Yes	Yes
113-41-10230	Unnamed	232	Herring Cove	Dolly Varden	Present	No	Yes



Revised PAD Figure 4-31. Anadromous Waters Catalog Streams

Appendix B. Study Requests Filed with FERC

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FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D.C. 20426

July 16, 2024

OFFICE OF ENERGY PROJECTS

Project No. 2818-025—Alaska
Green Lake Hydroelectric Project
City and Borough of Sitka, Alaska

Mr. Kord Christianson
Electric Department
City and Borough of Sitka, Alaska
105 Jarvis Street
Sitka, AK 99835

VIA FERC Service

Reference: Staff Study Request

Dear Mr. Christianson:

Based on the Green Lake Hydroelectric Project Pre-Application Document, we request that the City and Borough of Sitka, Alaska (CBS) conduct the recreation study described in the attached schedule A.

If you have any questions, please contact Jeffrey Ackley at Jeffrey.Ackley@ferc.gov.

Sincerely,

David Turner, Chief
Northwest Branch

Enclosures: Schedule A

Schedule A**Study Request**

We are requesting the following recreation study. We support this request based on the study criterion in section 5.9 of the Commission's regulations.

Recreation Use and Facility Assessment Study

§5.9(b)(1) – *Describe the goals and objectives of each study proposal and the information to be obtained.*

The goal of the study is to describe existing recreation facilities, describe their recreational use and capacity, determine if existing facilities are meeting user needs, and estimate future demand at the project. The objectives of this study are to:

- 1) Inventory and map the existing project recreation sites within the project boundary, including amenities;
- 2) Identify who owns, operates, and maintains each recreation site;
- 3) Evaluate the condition of the recreation sites and facilities; and
- 4) Estimate current recreation use and project use capacity at each project recreation site; and
- 5) Identify potential measures to enhance recreation opportunities, if necessary.

§5.9(b)(2) – *If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.*

Not applicable.

§5.9(b)(3) – *if the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.*

Sections 4(e) and 10(a) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located, and what conditions should be placed on any license that may be issued. In making its license decision, the Commission must equally consider the environmental, recreational, fish and

wildlife, and other non-developmental values of the project, as well as power and developmental values.

The Green Lake Project provides public recreation opportunities, and the Commission encourages its licensees to provide public recreation where it is compatible with project operation. To evaluate whether the project facilities are meeting existing recreation needs and to balance those needs with their costs, a recreation study that evaluates the existing and projected future use is relevant to the Commission's public interest determination.

§5.9(b)(1) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

In the Preliminary Application Document (PAD), CBS provides a brief discussion of recreation in the surrounding area and at the project. The recreational facilities mentioned in the PAD are the Green Lake barge landing and the Green Lake Access Road. However, article 39 of the license required revising the Recreation Plan to include the development of a parking area and visitor kiosk/user register at the main gate, a visitor kiosk/user register at the barge landing, modification of the main access road gate to allow for bicycle access, and project signage. Based on the environmental compliance inspection conducted on August 3, 2009, Commission staff found the kiosk/visitor register at the main gate and parking area to be heavily vandalized and required a plan and schedule for installing a new Part 8 sign at the main gate to be filed by December 16, 2009; however, no plan was filed. It is unclear whether CBS has installed all the required recreation signs and kiosks. Further, because the PAD does not list these facilities as project recreation facilities it is not clear who maintains these facilities. The PAD suggests that recreation demand is increasing in the greater Sika area, including new uses such as the use of e-bikes. Apparently, no recent recreation use studies have been completed in the area. Therefore, we cannot tell whether project facilities are meeting current recreation needs, such as parking.

A recreation study that identifies existing facilities, their condition, their current use and expected use would assist staff in determining if recreation enhancements, if any, are warranted at the project.

§5.9(b)(1) - Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Recreation is a recognized project purpose under section 10(a) of the FPA. Project operation can affect recreation access. Understanding what recreation facilities are there

now, how they are being used, who is maintaining those facilities, and their relationship to project land and waters would inform whether additional measures are warranted to meet project existing and future recreation needs.

§5.9(b)(6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The recreation study should consist of a facility inventory, a recreation user survey of visitors at project recreation sites, and spot counts.

Facility Inventory

The recreation inventory should: (1) map the location of facilities in relation to the project boundary; (2) describe the amenities provided at each facility; (3) describe the condition of the facility/amenity and parking capacity; (4) identify whether the facility is a project or non-project recreation facility; (5) determine the entity responsible for the operation and maintenance of each facility; (6) describe the hours/seasons of operation and; (7) document the facilities with photographs.

In-Person User Survey and Spot Counts

In-person user surveys and spot counts should also be conducted at the main gate parking area and the barge landing area.

Data collection should last for at least two hours per site on each day. The spot counts should record the number of users observed at the site on each day and should be conducted on at least four (4) days per month which should include two (2) randomly selected weekdays and two (2) randomly selected weekend days. If a month contains a three-day holiday weekend, one (1) day per holiday weekend should be included in addition to the standard survey days. A schedule should be developed for the distribution of the recreation use surveys and should occur during the recreation season.

The recreation user survey should be administered to users to gain opinions regarding the existing project recreation facilities and opportunities. The survey should record the number of people in a party, their primary reason (recreational activity and location) for visiting the project (if at all), their perception of level of use, and their opinions regarding the amount, condition, and types of recreation opportunities offered within the project area and any potential need for new opportunities/facilities.

Report Preparation

CBS should prepare a report that includes information and results on the facility inventory, user surveys, and spot counts. The report should include a determination of the percent of the site's capacity that is currently being utilized and the collected information should be used to project changes to project recreation demand over the term of any new license, if issued. Other information, including details on surrounding recreational use and demand within the project vicinity (e.g., e-bike use) would help inform what opportunities exist and may be needed in the project area.

§5.9(b)(7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The anticipated cost for the recreation use and facility assessment survey is estimated to be about \$60,000.



United States Department of the Interior



U.S. FISH AND WILDLIFE SERVICE
Southern Alaska Fish and Wildlife Field Office
Anchorage Fish and Wildlife Conservation Office
4700 BLM Road
Anchorage, Alaska 99507

In Reply Refer to:
FWS/R7/SAFWFO

Mr. Kord Christianson
Project and Regulatory Manager
City and Borough of Sitka
105 Jarvis Street
Sitka, Alaska 99835

Subject: Study Request and Comments on the Pre-Application Document for the Green Lake Hydroelectric Project (P-2818-025), Service File Number 2024-0119884

Dear Mr. Christianson,

Thank you for your Notice of Intent and Pre-Application Document (PAD) for Green Lake Hydroelectric Project (Federal Energy Regulatory Commission [FERC] project number 2818), which were filed with FERC on March 25, 2024, and for the agency meeting and site visit on June 12, 2024. The U.S. Fish and Wildlife Service has reviewed the PAD and submits the enclosed study request.

We appreciate the opportunity to comment on the PAD and request studies. For more information or if you have any questions, please contact Senior Fish and Wildlife Biologist Ecological Services, Ms. Carol Mahara at (907) 280-9751 or at carol_mahara@fws.gov and reference Service file number 2024-0119884.

Sincerely,

Acting for:
Douglass M. Cooper
Branch Chief, Ecological Services

Enclosure

Study Request: Access Road Water Crossing Assessment

A baseline inventory and assessment of stream crossing structures along the Green Lake access road is important for understanding the current road condition, and developing a long-term maintenance strategy that considers projected precipitation levels and stream processes to minimize the road's adverse impacts on water quality and aquatic habitat. The subsequent strategy may identify crossings in need of more frequent maintenance and/or eventual upgrades.

Goals and Objectives

§5.9(b)(1) — Describe the goals and objectives of each study proposal and the information to be obtained.

Goals

The goal is to provide a baseline inventory and assessment of water crossing features along the Green Lake access road, with consideration of stream characteristics and how those characteristics might change.

Objectives

Specific objectives of this study are to:

1. Identify and survey water crossing structures along the project road following the Forest Service Handbook (FSH) road condition survey protocol. Survey notes should document any issues with the structures.
2. Categorize the streams at each crossing following FSH protocols for determining stream value class and channel type. Stream notes should document any resource concerns and potential site-specific mitigation measures.
3. Determine flood flow frequencies for the frontal watersheds feeding the stream crossings using U.S. Geological Survey (USGS) guidance, with consideration for climate projections.
4. Given the conditions of the structures, stream characteristics, and projected flood flow frequencies, document considerations for maintenance and/or upgrades at each crossing.
5. Build and maintain an inventory of the crossings, their stream features, and relevant notes and recommendations.

Relevant Resource Management Goals

§5.9(b)(2) — If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

§5.9(b)(3) — If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

The overarching resource management goal of the U.S. Fish and Wildlife Service (Service) is described in our mission:

To conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

The Service has authority to request fish and wildlife resource studies related to this project in accordance with provisions in the Federal Power Act (FPA, 16 U.S.C. § 791 et seq.), Fish and Wildlife Coordination Act (FWCA, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), Clean Water Act (CWA, 33 U.S.C. 1344), National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.), Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d), and Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).

Under section 10(j) of the FPA, National Marine Fisheries Service (NMFS) and the Service are authorized to recommend license conditions necessary to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of hydropower projects. Section 10(a)(1) of the FPA requires the Federal Energy Regulatory Commission to condition hydropower licenses to best improve or develop a waterway or waterways for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) based on NMFS and Service recommendations and plans for affected waterways. Specific management goals are the protection of anadromous, trust fish species, and their habitats.

Consistent with our mission and with the legal authorities described above, our resource goal in this matter is to conserve existing fish and wildlife resources and their habitats along the project road and downstream to Silver Bay.

Background and Existing Information

§5.9(b)(4) — Describe existing information concerning the subject of the study proposal, and the need for additional information.

The Pre-Application Document (PAD) noted five anadromous streams in the vicinity of the Green Lake access road; two anadromous streams cross the access road, and the anadromous segments of the other three streams do not cross the access road (PAD page 67). The condition of these crossing structures, as well as any non-anadromous stream crossing structures, are not discussed in the PAD.

Climate projections for Southeast Alaska indicate that annual precipitation will continue to increase, and it is likely the increases will be driven by precipitation events of greater intensity (Lader et al. 2022). These changes could put stress on road infrastructure not designed for the magnitude and frequency of future flow levels. Additionally, alluvial fan channels are abundant in the project area and present unique challenges for road maintenance and erosion control.

Alluvial fans are situated between steep hillslopes and valley bottoms or lowlands, and they create a complex stream system with a wide range of erosion, transport, and deposition processes. Alluvial fan channels are frequently poorly contained and dynamic, easily shifting because of log jams and debris deposits. The lower reaches of an alluvial fan are often accessible to fish who use the pools created by debris accumulation, while higher reaches are often inaccessible to fish except where the stream gradient is low enough to enable passage.

Regardless of fish use within the alluvial fan, these channels can influence downstream water quality and fish habitat productivity.

Project Nexus

§5.9(b)(5) — Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The access road is an important project facility. Road drainage, when not maintained, can lead to road failures during floods contributing large volumes of sediment downslope, sometimes into streams. Culverts in alluvial fans are especially susceptible to clogging by bedload sediment and woody debris and may require accelerated maintenance schedules. When it is necessary to replace crossing structures in alluvial fans, new structures should accommodate climate-projected flow levels and any special measures necessary to stabilize road drainage.

The Service requests that the Applicant conduct this study to identify and survey current road crossings and determine their condition. This information can be used to inform a road maintenance strategy that minimizes impacts to water quality and aquatic habitat.

Proposed Methodology

§5.8(b)(6) — Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field seasons(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant Tribal values and knowledge.

The recommended methodology comes from the U.S. Forest Service Handbook for road condition surveys (FSH 7709.58 – Transportation System Maintenance), as used by the Alaska Department of Fish and Game (ADF&G, 2000). For the stream value class and channel type components of the survey, the recommended methodologies are the Tier I protocol in the (FSH 2090.21 – Aquatic Habitat Management) and the Region 10 Channel Type Revision. We recommend using USGS guidelines for determining frequencies of flood flows (England et al. 2019) for the frontal watersheds that feed stream crossings at the access road, with special consideration for climate projections. The proposed methodology has been used by the U.S. Forest Service in Southeast Alaska to inventory and assess extensive road systems.

Level of Effort and Cost

§5.9(b)(7) — Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The level of effort and cost will be refined as the study plan is finalized, but the cost would be commensurate with the 18.5 megawatts of electricity this project would continue to produce.

Literature Cited

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- Lader, R., U.S. Bhatt, J.E. Walsh, and P.A. Bieniek. 2022. Projections of hydroclimatic extremes in Southeast Alaska under the RCP8.5 Scenario. *Earth Interactions*, 26, 180-194. 1-32.
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- [USDA]. 2024. Forest Service. Region 10 channel type revision. Update to channel type user guide 1994. <<https://www.fs.usda.gov/detail/tongass/maps-pubs/?cid=stelprdb5413798>> Accessed July 21, 2024.

Appendix C. Recreation Plan Review

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Green Lake Hydroelectric Project Relicensing Document Review and Research - Recreation

Pre-Application Document (PAD)

This document accompanies a Notice of Intent (NOI) with FERC by the CBS' Electric Department to relicense the existing Green Lake Hydroelectric Project. The PAD is a tool for providing existing engineering, operational, environmental, and socioeconomic information pertaining to the project that is reasonably available at the time the NOI and PAD are filed. The PAD is intended to provide information to help identify and evaluate potential effects on the project area resources resulting from continued project information.

The PAD states the Vodopad River watershed is protected by water quality criteria for fresh water designated water uses including recreation.

The PAD indicates that the project and the surrounding area offer a wide selection of recreational opportunities. The vast natural areas and inherent beauty of Baranof Island attract locals and travelers from around the world to engage in outdoor activities that include hiking, biking, hunting, fishing, subsistence harvesting, water activities, wildlife viewing, camping/cabins, winter sports, and motorized recreation. Tourism in the Sitka area has seen exponential growth in recent years. For example, the number of cruise ship visitors increased from 200,000 prior to the pandemic to 380,000 in 2022. CBS estimates up to 510,000 cruise ship arrivals in 2023 and beyond. The influx of cruise ship passengers and independent visitors has led to concerns about overcrowding, damage to trails, and conflicts between user groups, but tourism also provides economic opportunity (Sitka Trail Works 2023). Federal and state agencies, other local entities, and CBS are working together to address recreational opportunities and conflicts on Baranof Island. Specific issues include increased trail demand, trails crossing multiple land jurisdictions, funding, maintenance, and demand for new opportunities such as e-bike use and cabins (Alaska Trails n.d.). CBS has investigated constructing cabins on an island for recreational use. If cabins are built, they would be located above the maximum flood elevation of 20 feet to avoid a change in the hazard rating of Green Lake Dam (it is currently a low hazard dam).

Within the Project boundary, recreational facilities include the following:

- Green Lake: Recreational activities include brook trout fishing, boating, hunting, and wildlife viewing. Brook trout reach considerable size in Green Lake; the state record is from Green Lake in 2012, which weighed 3 pounds and measured 20 inches.

Recreators reach Green Lake via the Green Lake access road or Silver Bay by boat, a landing is located near the powerplant.

- Green Lake Access Road: Recreational activities include hiking, running, biking, and skiing. The 7-mile stretch of Green Lake Road from near the Medvejie hatchery to Green Lake is closed to public vehicle traffic, but CBS allows public access by foot or bicycle only. The road is gated with an access opening for pedestrians. The access road provides 7 miles (one way) of road access for hiking/biking and is rated as easy to moderate; there are a few small hills along the road and a large hill as the road climbs to Green Lake. Recreators might encounter light traffic due to both the Project and the Medvejie hatchery staff vehicles.

In the greater area surrounding the Project boundary, additional recreational opportunities are widely available. An impressive trail network is available in the Sitka area; 54 trails totaling 76 miles are located on federal, state, and municipal lands. The plan also includes recommendations for policy, programming, and infrastructure to enhance outdoor recreation in Sitka.

Recreation and associated facilities in the greater Sitka area are well known to be a high priority due to high demand. Affected entities, including CBS, are working together to address issues, such as increased trail demand, trails crossing multiple land jurisdictions, funding, maintenance, and demand for new opportunities such as e-bike use and cabins. CBS plans to maintain the existing recreation facilities in the Green Lake Project boundary, and public access to these facilities, as they currently are. Green Lake and the Green Lake access road contribute to recreation opportunities in the greater Sitka area.

CBS plans to maintain the existing recreation facilities in the Green Lake Project boundary and public access to these facilities, as they currently are. However, CBS has identified several information gathering opportunities to help address the larger recreation demand issues in the greater Sitka area including the following:

- CBS will collaborate with other recreation stakeholders in the Sitka area regarding an e-bike use policy. CBS would consider adopting a policy for e-bikes on the Green Lake access road consistent with policies at other recreation facilities.
- Lucky Chance Historic Trail has been identified as a potential new 14-mile loop trail (9 miles of new construction) in the Sitka Trail Plan 2023 Draft. Lucky Chance Historic Trail is located on the south side of the Vodopad River. Access to this trail could be provided by constructing a new bridge across the Vodopad River gorge and extending the Green Lake access road. However, CBS is opposed to providing access across the

Vodopad River for security and safety reasons. Routing hikers by the switchyard and tailrace is considered a liability.

Sitka Trail Plan 2023 Draft

By Sitka Trail Works

Contains trail maintenance and development priorities. One of note is the Lucky Chance Historic Trail.

This proposal would create a loop trail of two historic trails: Lucky Chance Mine and Salmon Lake. It would allow hikers to see the remnants of the first major hard rock mines in Alaska, while taking users through old-growth forests, alpine lakes, muskegs, and narrow gorges. It could potentially connect to Sitka's road system with installation of a substantial bridge, cable car crossing, or public skiff system from the end of Green Lake Road. The entire loop would result in a 14-mile trail which would satisfy desires for multi-day backpacking trails and access to backcountry skiing.

Agency & Participants: Forest Service, City & Borough of Sitka, Federal Energy Regulatory Commission

USDA Forest Service Tongass Land and Resource Management Plan, 2016

The plan guides all natural resource management activities and establishes management direction for the Tongass National Forest. The plan establishes land use designations within the forest for different uses or activities. Development in the land use designation must be consistent with the plan. The plan also establishes the standard for the allowed use or activity and guidelines for accomplishing the standards.

The plan states that the Sitka municipal watershed is with the Tongass. Silver Bay is identified as a small boat and mid-size tour boat route. Silver Bay is also identified as a Saltwater Use Area, and the headwaters area of Silver Bay is identified as a boat anchorage.

Hydroelectric resources are generally allowed, as is access to hydroelectric resources as a special use, in accordance with standards and guidelines. There are exceptions.

Tongass National Forest Sustainable Trails Strategy, Alaska Trails

The strategy was prepared under a Challenge Cost Share Agreement between the USFS and Alaska Trails. The strategy is for the entire Tongass Forest, with chapters specific to each ranger district within the forest, including Sitka. The strategy has a planning horizon of 10-

20 years. The goal of the strategy is to offer recommendations to create a more sustainable trail system within the Tongass National Forest.

The strategy acknowledges Sitka Trail Works as an organization that can secure resources, including volunteers to augment USFS funding, and recommends USFS invest in community scale trails plans.

The USFS National Visitor Monitoring Data of Interest indicates more than 85% of visitors to Sitka engage in hiking/walking.

The strategy indicates that increased cruise travel to Sitka will increase trail demand for walking, hiking, e-biking, and biking. Trails need to range from safe roadside paths to adventurous hikes.

No projects are recommended in the project area.

Sitka Comprehensive Plan, 2030, Adopted 2018

The Comprehensive Plan is intended as a framework to guide development and strategic community investment over the next 15-20 years. The plan consists of two documents: Sitka Comprehensive Plan, which summarizes key data and offers abbreviated versions of issues and challenges to address, including goals, objectives, priority actions, future growth maps, and focus area narratives; and the Technical Plan, which includes all plan data, references, sources, and a detailed review of background and contextual material as well as issues and challenges to address. The Technical Plan also includes a community profile comprised of history, demographics, income, physical environment, natural hazards, and coastal management.

Goal: Maintain and expand Sitka's diverse recreational opportunities.

The plan notes that alpine and other uplands provide the possibility for future recreational development. Recreation is highly valued by the community.

Goal: Provide desirable community facilities and services in an efficient and cost-effective manner to meet the need of Sitka's residents, businesses and visitors.

The plan notes that electric rates will be positively affected by increasing the number of consumers and demand.

Green Lake and Silver Bay are not mentioned.

The Technical Plan discussed electric power distribution and Green Lake.

Future Growth Focus Areas includes Remote Municipally Owned Land, which includes Green Lake as follows:

Continue hydroelectric, aquaculture, and recreational use.

The CBS owns approximately 5,000 acres surrounding Green Lake and vicinity. Access is via a road that is a continuation of Sawmill Creek Hwy. The road follows the shoreline of Silver Bay from Herring Cove about 7 miles before turning uphill to end at the shores of Green Lake. The road was built as a utility service road for Green Lake Dam. Public access is by foot or bicycle only. Many people walk, jog, or bicycle along the road. Restricted access vehicular use is light and is by the Green Lake Hydroelectric Facility and the Medvejie Salmon Hatchery at Bear Cove that is run by the Northern Southeast Regional Aquaculture Association (NSRAA). In the winter, the road is often packed snow and ice. A 0.5-mile trail leads from Bear Cove to Medvejie Lake, nestled in a deep valley between Bear Mountain and Cross Mountain. Silver Bay is a cost recovery fishing site for NSRAA.

The Sitka community values recreation, particularly access to scenic and pristine area for fishing, beachcombing, picnicking, hunting, camping, etc. The business community recognizes recreation as important to a strong economy.

In explanation of the state of access to uplands/alpine for future recreation, the Technical Plan states that as uplands in Sitka are developed, it is important for the CBS to retain, or as needed, acquire rights-of-way or easements to provide future access to the undeveloped alpine and Sitka Cross Trail hiking route.

Sitka Coastal Management Plan, Adopted 2007

In 2011, when the State of Alaska withdrew from the federal coastal management program, Sitka codified their Coastal Management Plan's enforceable policies in order to locally implement the plan. Also adopted are the boundaries, definitions, designated recreation and coastal access areas, special management areas, and designated recreational use areas.

Green Lake and Silver Bay are not included as a special management area or designated as a recreational use area.

Sitka Short Term Tourism Plan, Adopted 2022

The plan was drafted in response to forecasted increases in cruise visitors nearly doubling the number from previous high visitation seasons. The increase in numbers was primarily due to the opening of the privately owned Sitka Sound Cruise Terminal. The plan has five elements: dispersion, transportation, traffic, infrastructure needs, and future planning needs. The

planning horizon is 5 years. The plan addresses each of the elements, presents options, evaluates pro/cons, and makes recommendations. The plan recommends a comprehensive impact study to understand the impacts of cruise visitation and increasing passenger volumes. Green Lake and Green Lake Road are not mentioned. The plan focuses primarily on the core downtown.

Statewide Comprehensive Outdoor Recreation Plan, 2022

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) is a statewide planning document, providing a statewide overview of outdoor recreational supply and demand profiles, resources, and issues. The SCORP also presents a more detailed evaluation of six regions. Sitka is within the Southeast Region.

The SCORP notes that the Southeast Region had the highest survey response engaging in outdoor recreation (99%). The plan also notes the trend of increased cruise ship visitors and the need to expand and improve regional recreation infrastructure. Sitka is noted as an example several times in the plan for innovative partnerships related to providing recreation infrastructure and programming.

The plan establishes seven statewide goals. Each goal includes objectives and strategies to meet the stated objectives.

Appendix D. Sample On-site Survey Instrument

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SAMPLE ONSITE SURVEY INSTRUMENT

RECREATION VISITOR SURVEY – GREEN LAKE HYDROELECTRIC PROJECT

ABOUT THE PROJECT

The City and Borough of Sitka (CBS) is studying recreation use at the Green Lake Hydroelectric Project, including Green Lake Access Road and Green Lake Dam. The Project is undergoing relicensing in accordance with the Federal Energy Regulatory Commission (FERC) Integrated Licensing Process which includes comprehensive natural resource studies. Recreation is one of the resource areas being assessed and this survey is part of an ongoing Recreation Study effort being conducted by R&M Consultants, Inc., a subconsultant to McMillen who is under contract with CBS.

ABOUT THIS SURVEY & RECREATION STUDY

The purpose of this survey is to learn about your recreational experiences, including your recreational activities (for example, walking, biking, sport fishing, boating, etc.) within the Project Area.

The survey may take up to 20 minutes to complete and has four (4) sections:

1. Your Visit to the Sitka Green Lake Area
2. Reasons You Visit the Sitka Green Lake Area
3. Your Evaluation and Suggestions
4. About you

INFORMED CONSENT: YOUR PARTICIPATION IS VOLUNTARY

Participation is voluntary and all responses will be kept anonymous. By completing and submitting this survey, you consent to have your responses used by R&M Consultants and project partners to inform the FERC relicensing process. A study report will be prepared by R&M Consultants and made available to McMillen Corporation, City and Borough of Sitka, and FERC. Reports will be available for public review near the end of 2026.

SITKA GREEN LAKE PROJECT AREA

The survey asks about you and your experiences recreational activities within the Project Area, including Green Lake Road, Green Lake Dam, and Green Lake. Refer to the map below to review the Sitka Green Lake Hydroelectric Project area.

PROJECT AREA MAP



YOUR VISIT TO GREEN LAKE

1. Have you answered this survey before in the last year?

- Yes
- No

2. Including today's visit, approximately how many times have you visited Sitka Green Lake Project in the last 6 months?

- a. Between 1-5 times
- b. Between 6-10 times
- c. Between 11-20 times
- d. More than 20 times

3. From where did you access the project area today?

- a. Green Lake Road
- b. Saltwater Beach

4. How did you get to the project area?

- a. By car
- b. By foot
- c. By bicycle
- d. By ATV/UTV
- e. By boat/skiff (motorized)
- f. By paddle boat/kayak/canoe
- g. Other: _____

5. Including yourself, how many are in your party during your visit to the Sitka Green Lake area?

- a. Number of people in party: _____
- b. Number of dogs: _____

6. Are you visiting any of the following trails today?

Check all that apply:

- a. Beaver Hump Trail
- b. Herring Cove – Beaver Lake Trail Head
- c. Bear Mountain Ridge Trail
- d. Bear Lake Ridge Trail
- e. Warm Springs Trail
- f. Cross Mountain, Indigo Lake Trail
- g. Trail out to Herring Cove Point & Island

7. We would like to know where you are going throughout the project area and what activities you are participating in at those location.

Please check the appropriate boxes to indicate your main and secondary recreational activities and the areas at which you participated in those activities.

Recreation Activity	Zone 1 (Green Lake Access Road)		Zone 2 (Silver Bay/Saltwater Beach)		Zone 3 (Green Lake and Dam)		Zone 4 (Trails)	
	Main activity (select 1)	Other (select all that apply)	Main activity (select 1)	Other (select all that apply)	Main activity (select 1)	Other (select all that apply)	Main activity (select 1)	Other (select all that apply)
Paddling/floating								
Motorized boating								
Camping								
Biking								
Winter/fat tire biking								
E-Biking								
Photography								
Watching birds or other wildlife								
Sightseeing								
Commercial guiding								
Scouting for wild game								
Berry picking								
Harvesting other wild plants								
Fishing or angling								
Hiking/walking								
Snowshoeing								
Cross-Country Skiing								
Trapping								
Hunting for big game								
Other:								

YOUR REASONS FOR VISITING GREEN LAKE

8. What motivated you to use the area around Green Lake?

There are many reasons you might have decided to recreate at the Green Lake Project Area. Considering today's visit, **please rate how important were each of these experiences in motivating you to use the area.**

<i>Motivating Experiences</i>	<i>Not at all important</i>	<i>Not very important</i>	<i>Neutral</i>	<i>Somewhat Important</i>	<i>Extremely Important</i>
Getting exercise or keeping physically fit					
Improving mental health or reducing stress					
Challenging myself					
Being close to nature					
Explore new places or environments					
Escaping crowds or experiencing solitude					
Teaching or sharing outdoor skills with others					
Socializing with family or friends					
Using or testing my equipment					
Foraging and gathering wild plants					
Getting to work or school or running errands					
Doing something thrilling or exciting					
Exercising my pets					
Other Reason (write in):					

YOUR EVALUATION AND SUGGESTIONS

9. Please select the option that best represents how satisfied you have been with your experience using the Green Lake Area

Very Unsatisfied	Unsatisfied	Neutral	Satisfied	Very Satisfied

10. If inclined, please tell us why you are satisfied or dissatisfied with your recreational experience:

11. How many other groups or parties (including individuals alone), other than your own, have you encountered on your visit to the Green Lake Project Area?

a. Number of groups/individuals encountered: _____

12. In your opinion, how crowded do you feel the Project Area is during your visit?

Based on your experience on local trails, rate the degree to which each of these issues presents a barrier to you using or enjoying the trails around Green Lake.

	Not at all crowded	Not very crowded	Neutral	Somewhat crowded	Very Crowded
Level of perceived crowdedness					

13. On a scale of 1-5, how would you like to see the Green Lake area developed?

	← Less development. 1	2	Keep as is. 3	More development. → 4	5
Desired level of development					

14. Pedal-assisted electric bicycles (“e-bikes”) have recently gained popularity and the City and Borough of Sitka is considering whether to allow the use of e-bikes on Green Lake Road which is currently a non-motorized facility. Do you support allowing public use of e-bikes on Green Lake Road?

	Strongly Opposed	Somewhat Opposed	Neutral	Somewhat Supportive	Strongly Supportive
Level of support for e-bike use					

15. With the understanding that this is a primitive use area, in your opinion, what are the most important facility improvements to make at Green Lake Project Area?

Parking area improvements

Unsure

More signs to find your way

None

Benches

Other 1: _____

Installation of interpretive signs

Other 2: _____

16. Please briefly explain your answer to the last question.

ABOUT YOU

17. What is your zip code?

Write the five-digit zip code of your physical address or residence. We use this information to make sure we are reaching many neighborhoods in the planning area.

Zip Code: _____

18. What is your age group?

- Under 16 years 26 – 35 years 46 – 55 years Over 65 years
 16 – 25 years 36 – 45 years 56 – 65 years

19. What is your race or ethnicity?

- White Native Hawaiian or Other Pacific Islander
 Black or African American Hispanic, Latino, or Spanish
 American Indian and Alaska Native Two or More Races
 Asian Prefer not to answer

20. What is your gender identity?

- Man Non-Binary
 Woman Prefer not to answer

Thank you for your time and feedback! Your input will inform the relicensing process for Green Lake Hydroelectric Project.